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Illinois Medical Journal

OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 3 CHICAGO, MARCH, 1917 $2.00 a Year

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXXI CHICAGO, ILL., MARCH, 1917 No. 3

Original Articles

THE BIO-CHEMISTRY OF TOPICAL APPLICATIONS WITH SPECIAL REFERENCES TO THE USE OF BORIC ACID IN SEPTIC INFECTIONS.*

EDWARD H. OCHSNER, B. S., M. D.,
CHICAGO.

The laws governing the absorption of local applications to the skin have been the subject of considerable investigation and much controversy.

Something over twenty years ago I became interested in the question as to the relative value of boric acid and other wet dressings in the treatment of septic infections. After considerable clinical experience and numerous comparisons with other methods of treatment I became convinced that if boric acid is used in a saturated aqueous solution it is very effective in certain types of infection.

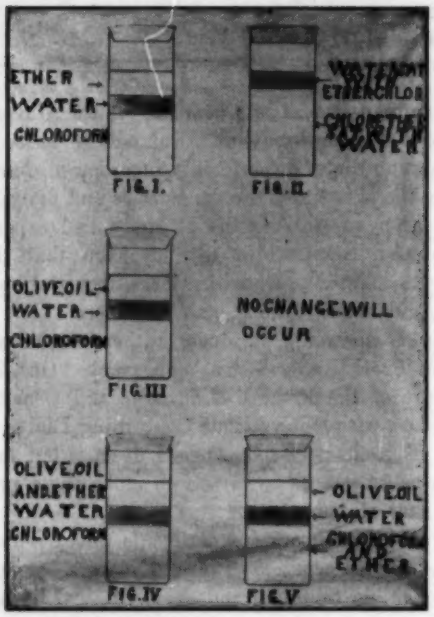
After I became thoroughly convinced that my observation as to the efficacy of boric acid as a wet dressing was correct, I became curious to know why it was effective and why a saturated solution was much more effective than an unsaturated one. I then took up the study of osmosis and dialysis and the meaning of the words "Iso-osmotic" and "Iso-tonic." I soon came to the conclusion, however, that these terms were being very loosely employed in the literature, that no two writers used them exactly in the same sense, and I became further convinced that the laws of physics dealing with dialysis and osmosis were probably based on insufficient experimental data and were consequently incorrect. At this stage of my investigation I turned to my old teacher, Prof. Daniells, for assistance and advice. He referred me to one of his assistants, Prof. Louis Kahlenberg, whose specialty at that time was physical chemistry and who now is head of the Department of Chemistry of the University of Wisconsin. Prof. Kahlenberg made a great number of experiments in order to determine the laws which govern osmosis and dialysis, and after several months of study and experimentation corroborated my suspicion that the laws, as heretofore stated in works upon this subject, did not accurately state the facts.

As I am going to quote rather extensively from Prof. Kahlenberg's monograph "On the Nature of the Process of Osmosis and Osmotic Pressure with Observations Concerning Dialysis" and from our correspondence, I deem it but fair to him as well as to myself to make these preliminary statements.

Prof. Kahlenberg's experiments and observations covered a period of several years, were very painstaking, thorough and extensive, and he has been so fortunate as to work the whole matter out, put the whole subject on a secure scientific basis and to formulate new and tenable laws in reference to osmosis and dialysis. Among other things, he has proven, first, that the physical theory of osmosis, according to which osmotic pressure, so-called, was due to the bombardment of a semi-permeable membrane by dissolved molecules is not true. Thus, for instance, it was found that membranes heretofore considered impermeable were really very permeable to certain substances. Second, that osmosis and dialysis are really chemical processes depending upon the differences in chemical affinities different substances have for each other. Third, that by knowing the exact chemical formula of the membrane, the solvent and the solute, one can absolutely predict whether or not osmosis is going to take place and in which direction it is going to take place even before the experiment is started. It was further proven that the theory, that only crystalline substances are dialysable, was entirely at fault, because colloids will pass through certain membranes through which crystalloids will not pass.

*Read before the Southern Surgical and Gynecological Association at White Sulphur Springs, West Virginia, December 11, 1916.

If chloroform is placed in the bottom of a beaker, over this a layer of water is carefully placed and over this a layer of ether, as in Fig. 1, and the beaker is set aside, in a relatively short time there will be only

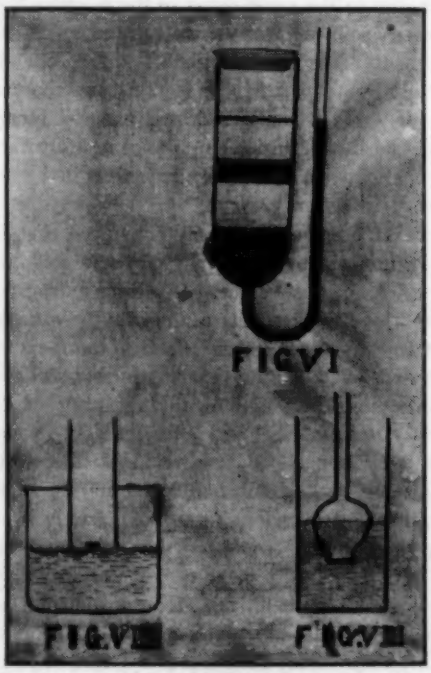


two layers in the beaker—a lower layer consisting of chloroform and ether saturated with water and an upper layer of water saturated with ether and chloroform. That the change is not due to gravity is evident because water is considerably heavier than ether, and chloroform heavier than either. Instead, it occurs because water has a slight affinity for ether and chloroform has a greater affinity for ether than has water. In other words, the water takes up a little ether and as it takes up the ether, the chloroform in turn robs the water of the ether until practically all of the ether has been taken up by the chloroform. If in place of ether, olive oil is substituted as in Fig. 3, no change will occur if the beaker is allowed to stand quiet, because the water has no affinity for the olive oil. If, however, olive oil is dissolved in ether, as in Fig. 4, the water will abstract the ether from the olive oil and in turn the chloroform will rob the water of the ether, and there will in a short time be a rearrangement of the liquids, an upper layer of olive oil, a middle layer of water and a lower layer of chloroform and ether, as in Fig. 5. This occurs for the same reason as the changes in Fig. 1 and 2.

If an apparatus is arranged, as in Fig. 6, placing mercury in the bottom, then chloroform saturated with water, then a tight-fitting cork and then a layer of ether, no change will take place even if allowed to stand indefinitely. However, if the cork is first thoroughly boiled so as to drive out all the air and replace this air with water, a marked change immediately takes place. The ether gradually disappears and the mercury is gradually driven up in the tube until the pressure becomes so great that either the cork is displaced or the tube breaks from the increased pressure from within. The affinity of the chloroform for the ether is so great that it will rob the water in the cork of the ether with such avidity as to create pronounced osmotic pressure.

If a simple osmometer is made with a thistle tube with a flare of about 45° at the mouth, the mouth carefully covered with dental rubber, such as used by dentists in making their rubber dam, water put on the inside of the thistle tube and the osmometer immersed in 95.5 per cent. alcohol, as in Fig. 8, the liquid will soon rise in the osmometer showing that the alcohol is passing through the rubber dam into the water.

I think most of us have had the impression that rubber is an impermeable membrane, but as a matter of fact it is permeable to many substances. Osmosis takes place here because the rubber has a slight affinity for the alcohol, takes some of it up, but as the water has a stronger affinity for the alcohol than rubber has, the water will rob the rubber of its alcohol and draw the alcohol through the rubber into the



water. Osmosis through rubber will always take place if the rubber has an affinity for the solute, providing the solvent has a stronger affinity for the solute than has the rubber.

If a solid block of camphor weighing 2 gms. is placed in the osmometer, as in Fig. 7, the outer liquid is CS_2 and the membrane is rubber, in four minutes

it is clearly apparent that the block of camphor is being attacked. After thirteen minutes a thin layer of liquid is visible on the upper side of the rubber and after forty-five minutes all solid camphor will have disappeared, having passed through the rubber into the CS_2.

If the inner liquid, in Fig. 8, is a 0.05 normal solution of Ag NO_3 in pyridine, the outer pyridine and the septum rubber, no change whatever takes place even if the experiment be continued for a period of six days. However, if the inner liquid is a normal solution of Ag NO_3 in pyridine, the outer liquid pyridine and the membrane rubber, the liquid in the osmometer rises to a height of 15.6 cm. by the end of the third day.

I quote the above two experiments because they have an important bearing on clinical observations and because they are two of a considerable number of similar experiments which demonstrate that solutions must be of a certain minimum concentration in order that osmosis take place. In other words, even in laboratory experiments, if solutions are too dilute osmosis will not occur. Physical conditions, particularly stirring of the solvent, increase greatly the rapidity of osmosis as well as the osmotic pressure. The above experiments are a few selected from several hundred made by Prof. Kahlenberg and his assistants, because I believe they illustrate best the nature of osmosis and because they explain what takes place when solutions are applied to external surfaces of the body.

Clinically the laboratory experiments in osmosis can be very closely duplicated if we apply some substance in solution to the skin. The skin then becomes the osmotic membrane, the circulating blood and lymph beneath, the solvent, and the wet dressing or solution applied to the skin, the solute; the osmotic phenomenon will then occur, provided the skin has affinity for the solute and the lymph and blood have greater affinity for the solute than has the skin.

The two chemical substances used in our clinical experiments were boric acid and lithium carbonate. If one of these substances is dissolved in water in proper strength and an extremity is immersed in this solution or if the solution is applied as a wet dressing, it is rapidly absorbed. This is proven by the fact that within an hour the patient will void it in the urine. As lithium carbonate does not seem to have any marked therapeutic action if applied in this way, I will confine my remarks to our experiments with boric acid solutions. The experiments were conducted in the following manner:

The patient was directed to void his urine, then a saturated solution of boric acid was applied as a wet dressing. At the end of an hour and after this at intervals of two hours continuing during the period of illness and for two days after the wet dressings were removed, the urine was collected in absolutely clean sterile bottles, one bottle being used for each time the urine was voided. These samples were sent to Prof. Kahlenberg for qualitative and quantitative analysis. In every instance where a saturate solution of boric acid was applied appreciable quantities of boric acid appeared in the first specimen of urine voided and continued to appear in every specimen so long as the wet dressing was continued and for a varying number of hours after the dressing was removed. A considerable number of patients were followed up in this way. The quantity of boric acid excreted and found in the first specimens voided varied from 0.001 to 0.01 per cent. With one patient the highest amount voided at any time was 0.05 per cent., while with another the highest amount of boric acid found was 0.2 per cent. The variations in all the cases were between these two figures.

When we were thoroughly convinced that a saturated solution of boric acid was absorbed in considerable quantities when applied as a wet dressing, we made tests with a 2 per cent. aqueous solution of boric acid as wet dressing. In one of these cases not a trace of boric acid was found in the urine until the dressing had been in place forty-six hours and then only 0.001 per cent. In a number of other cases treated with a 2 per cent. solution of boric acid, no boric acid was found in the urine at any time.

These chemical investigations demonstrate why it is necessary to employ boric acid in saturated solutions, and find their counterpart in the experiments with silver nitrate in pyridine where the septum was rubber. Here you remember that in a 0.05 per cent. normal solution, the silver nitrate in pyridine did not pass through the rubber for a period of six days, while in a normal solution of silver nitrate in the same experiment, the osmotic pressure rose to 15.6 cm. by the end of the third day. It is evident that solutions must be of a certain minimum concen-

tration before absorption or osmosis take place and that the rapidity of absorption or osmosis bears a direct relation to the concentration of the solution. The affinity between the water and small amount of boric acid is evidently so great that the lymph and blood on the other side of the septum, the skin, is not strong enough to rob the water of its boric acid in the two per cent. solution, while the four per cent. solution evidently gives up its boric acid much more readily.

That boric acid when applied as a wet dressing in saturated aqueous solution is absorbed by the tissue, I believe is incontrovertibly established by these experiments, but the skeptical might say, what of it? The fact that a certain substance is absorbed is not proof that it is of therapeutic value. However, I believe the next group of experiments, as well as our clinical experience, will prove that boric acid, if absorbed, is of value in septic infections. Boric acid does not seem to have any power of inhibiting the growth of pathogenic bacteria, but I am fully convinced that it has great power in reducing their virulence. I have repeatedly withdrawn streptococcus pus from a patient suffering from a septic infection of one of his extremities, and injected varying amounts of this pus into the peritoneal cavity of guinea pigs and mice. If this pus were withdrawn and injected before the patient had been treated with boric acid as a wet dressing, one to five minims of this pus invariably killed the test animal, while if the patient had been treated with the wet dressing for a number of days, I have repeatedly injected sixty minims of this same streptococcus pus without causing the death of the animal or even making the animal sick.

When we consider that under ordinary circumstances passing streptococci and other pathogenic bacteria through the human body practically always greatly increases their virulence the actual reduction of virulence in these cases proves, I believe, that boric acid, as a wet dressing, is a very potent remedy in the treatment of septic infection. In fact I have come to the point where I look upon this dressing as almost specific in streptococcus, Staphylococcus albus and citreus infections of the skin and cellular tissue as well as in pemphigus.

In this connection permit me to state that my clinical experience leads me to believe that boric acid wet dressings are not nearly as effective in Staphylococcus aureus, and entirely without value in gonorrhea, specific inguinal adenitis, chancre, chancroid, infections caused by the Flaschen bacillus of Unna, in pyocyaneus infections and in saprophytic infections; and even harmful in malignant edema, in tuberculosis, and in impetigo contagiosa. In order not to be disappointed in our use of boric acid wet dressings, it is important that we make a diagnosis as to the nature of the infection. As a rule, this can be done easily, at least one can practically always say whether a case is one of malignant edema, of tuberculosis, or impetigo contagiosa, and it is only in these three infections that boric acid is contra-indicated.

In order that the maximum amount of good be derived from this dressing, in cases of cellulitis and other forms of septic infections, a number of other points in its use should be observed. Probably the most important therapeutic agent and the one most often neglected is "Rest." Rest in bed with the extremity elevated and with the muscles surrounding the joint at equilibrium should always be insisted upon.

The eliminative function of the bowels, lungs, skin and particularly the kidneys should be most carefully looked after.

Septic infections of all kinds are attended with more or less pain, which in some cases may not only be excruciating, but very persistent. We must not forget that long continued severe pain greatly interferes with a patient's ability to develop immunity. Those of us who were not fully impressed with the above fact have had ample opportunity to become impressed with it by careful study of the opsonic index in a large number of cases. In every case thus studied it was found that the opsonic index absolutely refused to rise until the pain had been relieved in some other way than by the use of opiates. While boric acid dressings will relieve pain to a considerable extent, there are a number of other remedies and devices which can be employed to bring about cessation of pain more rapidly. Ninety-five per cent. alcohol added to the saturated solution of boric acid in quantities of from fifteen to thirty per cent., will often be found of great value. It is a good antiseptic, and in addition, it has a strong dehydrating effect and will help to make the limb warm and comfortable, reliev-

ing the extremity of the cold, clammy feeling, of which the patient sometimes complains when aqueous boric acid solution is used alone.

Placing the patient in bed with the affected limb elevated also relieves pain. In addition the rest will keep the muscles quiet, preventing the septic material from being pumped into the circulation and reduces to the minimum the danger from acute endocarditis and pyemia.

When the infection is superficial the best analgesic is to paint the reddened and inflamed area with ninety-five per cent. carbolic acid until the skin turns white, and then washing off the carbolic with alcohol. This will not only relieve the pain, but will destroy innumerable bacteria and will accomplish both without danger to the kidneys.

The question of drainage has been a perplexing one to many men and has been the subject of much controversy. In the great majority of cases, the veins and lymphatics can be drained by simply elevating the affected extremity, and this can be done so effectually that incision rarely becomes necessary. This drainage by elevation is assisted by the dehydrating power of the alcohol in the solution above advised.

There is an old rule in surgery, so old that I have not been able to trace its origin, which says, "Ubi pus, ibi evacuo,"—or in English, "Where there is pus, there evacuate." This rule, with certain modifications, is still a good one, but in recent times it has too often been exceeded. Many surgeons seem to have construed it to read: "Before there is pus, evacuate," which, of course, is an absurdity. To many of you the above statement may seem like an exaggeration, but in reality it is not. Sometimes these too early incisions are due to excessive zeal, and again they are prompted by fear of criticism on the part of one's fellow practitioners. I have no doubt but that every one of you can recall one or more cases when such early incision was actually practiced. One should always secure drainage just as soon as an infection occurs, but until macroscopic pus develops, this can be done much more safely and effectually without incision. If pus has formed before the patient applies for treatment, or as will sometimes, though rarely happen, in spite of treatment, and a localized abscess develops, as manifested by fluctuation, the proper thing to do is to secure free drainage by incision, and the old rule finds its proper application. There are, however, several points about the incision that are of utmost importance. First of all, before the part is incised, it is always well, whenever possible, to apply an Esmarch constrictor proximally to the proper point of the incision, and after the incision is made, pack the wound with a strip of gauze which has been soaked in tincture of iodin. The Esmarch will block the veins and lymphatics until the tincture of iodin can secure the closure of the cut ends by favoring the formation of thrombi, when the Esmarch can safely be removed. When these precautions are not observed, it often happens that the incision and necessary manipulation forces virulent septic material into the general system, as manifested by severe chills, marked pyrexia, and delirium a few hours after the operation. The part should be manipulated as little as possible in order to avoid these undesirable consequences, and especially is this last precaution to be observed if the incision is in some part of the body where an Esmarch cannot be applied. Another important precaution in reference to the incision is, that the incision should always be within the line of demarkation or distal to it. An ordinary boil is always surrounded on all sides, except the skin covering it, by a wall of leucocytes. It can practically always be incised without going through this line of defense. An infected finger is eliminated from the rest of the body by an infiltration of the tissues with innumerable leucocytes standing guard and ready to destroy any bacteria that come their way. The ridge can always be seen or felt, and it is just as easy to make the incision distal to this wall as to break down this barrier. I could cite many cases where this little rule was not observed, and almost always the convalescence was unnecessarily prolonged. One case in particular do I remember where extensive incisions were made without an Esmarch, and no attention was paid to the line of demarcation. The patient developed a chill within a few hours, the temperature rose to 106° F. and he died within two days from septicemia. Even if the patient is not thus overwhelmed with the septic poison, the wrongly executed incisions always infect new areas which take much time and vitality to heal, and sometimes the convalescence is thus unnecessarily prolonged for weeks and even months.

An additional and very important reason why septic infections should not be incised until there is positive evidence of pus, is that it takes some time for the patient to develop immunity and unless a certain degree of immunity is established at the time of incision, it is almost sure to spread the infection. This fact is one of the most important ones to be kept in mind in the treatment of infections, no matter where they may be located in the body, and hence this precaution cannot be too strongly emphasized.

If space permitted I could give the histories of a number of cases illustrating this point. Those cases in whom the incision was made too early always recover much more slowly than did those cases who had developed this immunity before the incisions were made.

Incision when found necessary should be made under strictly aseptic precautions, in order to avoid mixed infection. At the onset the infection is invariably caused by one variety of pathogenic bacteria against which the patient has already developed a certain degree of immunity at the time when the incision should be made. If now a new infection is superimposed upon the old one an additional, quite unnecessary burden is placed upon the already devitalized system, which will certainly greatly retard recovery and may even jeopardize the life of the patient.

At the time of incision it is also advisable to make a culture of the uncontaminated pus in order that a vaccine can be prepared in case for any reason healing is retarded. These autogenous vaccines are found to be much more effective than are stock vaccines.

For a long time it was the practice of many surgeons to excise all accessible, enlarged lymph glands. I consider that this is a grave error. When a lymph gland has broken down, is suppurating, drainage is, of course, necessary, but so long as it is simply inflamed, it shows that it is doing its duty, and it would be just as wise to withdraw an active fighting garrison from the last fort, as it would be to excise an active lymph gland, even though it be inflamed. So long as it is not suppurating, it is waging a winning battle and demands our support. It is sometimes the only barrier left, and its removal may lead to general sepsis.

By following the method of treatment above outlined, I have usually been able to avoid incising septic infections, and in cases which came to me before incision had been practiced, I have never lost a patient, never found it necessary to amputate an extremity, not even a finger or toe, and have not one single claw hand to my discredit.

I believe our physio-chemical experiments, our bio-chemical studies, our bacteriological investigation and our clinical experience are corroborative and justify the following conclusions, viz.: that osmosis is a purely chemical process; that boric acid when applied to the surface of the body in a saturated aqueous solution, is absorbed in appreciable quantities by a process of osmosis similar to the process studied in the chemical laboratory; that, when used in cases of septic infection, it is most potent in reducing the virulence of certain pathogenic bacteria, but, that in order to be effective, it must be applied in saturated solutions; and finally, that when applied as above directed in the early stages of septic infection, most cases will make complete recovery without incisions, without the loss of any member and without permanent impairment of function.

2155 Cleveland Ave.

REMOVAL OF THE GALLBLADDER.*

E. Starr Judd, M. D.,
ROCHESTER, MINNESOTA.

In a former paper on cholecystitis and the changes produced by the removal of the gallbladder, I mentioned some experimental work being done for me by Mann. I now wish to review these experiments, which have been completed, and, if possible, draw some conclusions from the results obtained.

ANATOMY.

The excretory apparatus of the liver is made up of: 1, the bile canaliculi or intrahepatic ducts in and between the lobules of the liver; 2, the hepatic ducts formed by the union of the canaliculi; 3, the gallbladder, a diverticulum or reservoir; 4, the cystic duct, a communicating tube, and, 5, the united hepatic and cystic ducts which form the common bile duct. The hepatic duct is formed by the union of the right and left bile ducts descending from the liver. These ducts unite at an obtuse angle at the right end of the transverse fissure of the liver—usually close to the liver.

*Presented before the Tri-State District Medical Society, Freeport, Ill., Sept. 26, 1916.

The normal gallbladder is pear-shaped and about 3 in. to 4 in. long. The broad, rounded end of the fundus projects downward, forward, and to the right. Normally, it holds from one to one and a half ounces. The neck of the gallbladder extends to the transverse fissure and continues in a spiral curve into the cystic duct. This duct is from 1 in. to 3 in. long and about 2.3 mm. in diameter. It joins the hepatic duct at an acute angle. On the inner surface the curving of the cystic duct corresponds to the screw-like valve running through the entire duct.

The common duct is about 3 in. long and ¼ in. (6 mm. to 7 mm.) in diameter. It passes downward behind the first part of the duodenum and behind and to the inner side of the second part, lying in a furrow between the duodenum and the head of the pancreas. For a short distance it is in contact with the right side of the pancreatic duct. These two ducts perforate the duodenal wall and run obliquely for ¾ in. between its coats, finally opening into a small pouch called the diverticulum of Vater. This diverticulum opens on a single papilla (papilla of Vater) of the mucous membrane of the duodenum. It is situated 3 in. to 4 in. below the pylorus on the posterior internal wall of the duodenum near the juncture of the middle and lower third.

All vertebrates do not have a gallbladder, although it is present in reptiles and nearly all fishes. The ass, horse, elephant, deer and rhinoceros do not have gallbladders, and in these animals a large common duct runs directly from the liver to the duodenum. In man and in all the animals that we have dissected, as far as we have been able to determine, the common bile duct and the main pancreatic duct (duct of Wirsung) empty into the same diverticulum, and this always enters the duodenum by a single papilla. At the papilla is a very small sphincter muscle which has been described by Oddi[1], Hendrickson[2] and Archibald.[3] It is so small that it is often hard to demonstrate even microscopically. By this muscle, bile is held back in the excretory apparatus, and especially in the gallbladder, until it is needed in the duodenum. Bile normally enters the duodenum by spurts; it does not flow continuously.

From Archibald's[3] and our own experiments we know that the normal pressure in the common duct is from 100 mm. to 200 mm. water. This pressure can be greatly increased (600 mm. water)by touching the mucous membrane of the duodenum with dilute acid and producing a spasm of the sphincter. Archibald has demonstrated that the entrance of the bile into the duodenum is under the control of a sphincter acting at the ampulla.

FUNCTION.

The exact function of the gallbladder has never been definitely established. The organ is most often spoken of as a reservoir for bile. However, this theory is questioned by many investigators, as such a comparatively small diverticulum holding at most only a few ounces seems inadequate when it is considered that the normal output of bile in 24 hours is from 30 to 50 ounces. C. H. Mayo[4] and Deaver[5] are of the opinion that the gallbladder acts as a tension bulb, and that during fluctuations of pressure in the ducts, due especially to pathologic changes, the gallbladder spares the parenchyma of the liver from back pressure. Physiologists say that the bile secreted in the intervals between digestion collects in the gallbladder, where it is condensed through the absorption of water. Flexner[6] has shown that if the mucus from the gallbladder is mixed with the bile, the latter is much less irritating to the pancreas.

EXPERIMENTAL DATA AS TO THE EFFECT OF REMOVING THE GALLBLADDER.

Somewhat similar experiments in the removal of the gallbladder have been carried out by Oddi,[1] Rost,[2] and Archibald.[3] Several surgeons have suggested that the removal of the gallbladder is followed by so-called compensatory dilatation of the common duct. Our investigation was made on dogs, cats and goats. The latter were employed because of the relationship of the pancreatic duct to the common duct. The former enters the latter at a rather acute angle, quite a distance from the duodenum. In the dog and cat, one of the pancreatic ducts opens into the common duct near the ampulla. In all our operative procedures the animals were anesthetized and the usual surgical technic employed. At different times after operation, except when the animals succumbed to intercurrent disease, they were etherized and killed. The points of interest were carefully examined grossly, and in many instances also microscopically.

After the removal of the gallbladder all the

extra-hepatic ducts dilate. This can be demonstrated in dogs and cats, and to a less extent in goats. The dilatation varies from a slight degree to twice or three times the normal diameter of the ducts. However, no dilatation was observed in the ducts within the liver substance; and the intramural portion of the common bile duct is dilated to a less extent than the rest of the duct. The greatest dilatation in the biliary tract occurs at the juncture of the hepatic ducts coming from the upper lobes of the liver. The cystic duct was found to be dilated in a few instances. That this was not noted more often we attribute to the fact that usually in removing the gallbladder the cystic duct was ligated very close to its juncture with the hepatic duct.* The time necessary for dilatation was variable. In general, dilatation of the biliary tract occurred in a dog or cat within 60 days after the removal of the gallbladder. No changes were ever observed in the liver or the pancreas, and even in goats, the pancreatic ducts always appeared normal. The following experiment is typical:

Experiment 469, Oct. 19, 1915. Male cur, weighing 10.2 k., was etherized and its gallbladder removed. The diameter of the common duct at the time of operation was 6 mm. The animal was killed with ether Feb. 8, 1916. The operative field was in excellent condition. The common bile duct was dilated, having a diameter of 1 cm.; after entering the wall of the duodenum its diameter was only 6 mm. The cystic duct had been completely ligated at the time of operation. All of the hepatic ducts outside the liver were dilated. The pancreatic duct seemed to be of normal size. The pancreas and liver were normal, grossly and microscopically.

It is desirable to know the exact mechanism by means of which this dilatation was produced. As increase in the size of the duct took place throughout its entire course, it is evident that the cause of the temporary obstruction and resulting dilatation must be located in its distal end. The most probable cause of the obstruction is the sphincter Oddi. This sphincter was first accurately described by Oddi and later investigated anatomically by Hendrickson, and physiologically by Archibald.

The effect of the sphincter in producing dilatation of the biliary tract after cholecystectomy was investigated by three methods: 1, a comparison of the pressure the sphincter would withstand in normal and control animals; 2, by surgically dissecting the duct free from muscle fibers in its passage through the duodenal wall at the time of removing the gallbladder; and, 3, by section of the mucosal opening and a portion of the sphincter through a duodenal incision. The residual pressure in the common duct, as measured by a water manometer, which is practically a measure of the pressure the sphincter of Oddi will withstand, is quite variable in normal anesthetized dogs and cats. Deep etherization and long periods of anesthesia, together with the exposure of trauma of handling, seem to decrease the tone of the sphincter and likewise the residual pressure. However, it is safe to say that in the normal animal under light anesthesia of short duration, the residual pressure is always greater than 100 mm. water, and usually greater than 150 mm. water. After removal of the gallbladder, the residual pressure is always very low; in some instances it was zero and rarely was it greater than 40 mm. water. The following experiment is representative:

Experiment 124, March 6, 1916. Female black cat, weighing 2.3 k., was etherized and its gallbladder removed. The animal remained in good health after operation. Aug. 2, 1916, it was again etherized and a water manometer was connected with the common duct. A normal cat of approximately the same size (weighing 2.2 k.) was also etherized and the common bile duct attached to the same manometer through a two-way stop cock. The sphincter of the cat operated on withstood a pressure varying between 30 mm. and 60 mm. water, while that of the control animal withstood a pressure of 160 to 170 mm. water. The common bile duct of the cat operated on was dilated, having a diameter of 3 mm. The diameter of the common bile duct of the control cat was 1.5 mm. The liver and pancrease of both animals were normal.

In the animals in which the gallbladder was removed and the muscle fibers were dissected free from the intramural portion, dilatation of the duct did not occur except when there was mechanical obstruction due to adhesions. The residual pressure in the unobstructed cases was always very low. The following experiment illustrates this point:

Experiment 176, March 24, 1916. Male dog, a mastiff, weighing 27.9 k. The gallbladder was removed and the common duct dissected free from muscle fibers in its intramural portion. The operation was accomplished with difficulty—in one place the bile duct was accidentally opened but was immediately closed with one silk suture. The animal was quite sick after operation, refused food and lost weight. July 18, 1916, the dog was etherized and the residual pressure

*In dogs and cats the true common duct is formed below the entrance of the cystic duct.

estimated. The pressure varied between 20 mm. and 30 mm. water. There were many adhesions at the site of the operation but the duct was not obstructed. The ligature on the cystic duct had cut through into the lumen and many small pin-point concretions were attached to it. There appeared to be a slight dilatation of the duct where the upper hepatic ducts joined. The common duct measured 7 mm. in diameter and evidently was not dilated. The liver and pancreas were grossly normal.

Section of the mucosal opening and a portion of the sphincter, through a duodenal incision, after removal of the gallbladder, has given variable results in regard to the effect on the duct, and positive conclusions cannot be drawn. However, in one perfect experiment, dilatation occurred as in the animals in which the gallbladder was removed.

Experiment 249, April 27, 1916. Male maltese cat, weighing 3.1 k., was etherized and its gallbladder removed. The duodenal mucosa was cut at the opening of the common bile duct, through a duodenal incision. The animal remained in good health except for the mange. July 7, 1916, it was etherized and the residual pressure in the common bile duct was estimated. The pressure here varied between 40 mm. and 50 mm. water. The common bile duct was dilated, measuring 4.5 mm. in diameter. The hepatic ducts were also dilated. Pancreas and liver were grossly normal. The duodenal opening of the common bile duct was very patulous, measuring 4.5 mm. in diameter. Both incisions were well healed.

That section of the mucosal opening of the common bile duct is not without danger is shown by experiment 104:

Experiment 104, Feb. 21, 1916. Female dog, spaniel, weighing 13.2 k., was etherized, its gallbladder removed and the sphincter of Oddi sectioned through a duodenal incision. The animal remained in good health except for slight mange. Aug. 4, 1916, it was again etherized and the common duct connected to a water manometer. The residual pressure was 100 mm. to 120 mm. water. There were many firm adhesions at the site of the operation, but none of them in any way obstructed the bile duct. The duodenal incision was well healed. The pancreas and its ducts were normal. The common bile duct was certainly not dilated, measuring 2.5 mm. in diameter. The duodenal opening of the duct was very patulous, measuring 5 mm. in diameter. The incision had healed perfectly. The liver appeared grossly normal. On opening the bile duct it was noted that the remaining portion of the cystic duct was slightly dilated and contained an ascaris. One or more ascarides were found in the hepatic ducts. In the duct going to the upper right lobe were three worms. There were none in the left lobe. In some cases the ascarides were deep in the liver substance.

The dilatation of the common bile duct which takes place after removal of the gallbladder does not prevent the guarding of the duodenal opening by the fold of mucous membrane, so that material from the duodenum does not flow back into the duct. In specimens in which the duct was greatly dilated and the residual pressure very low, it was impossible to produce a passage of fluid from the duodenum into the duct, even though the intraduct pressure was increased enormously.

The probable explanation of the preceding facts is as follows:

Normally the liver secretes bile constantly, although the rate varies. However, due to the action of the sphincter Oddi, bile is not passed into the intestine at the same rate it is secreted. The excess accumulates in the gallbladder. After cholecystectomy the sphincter attempts to maintain this difference between the rate of secretion and the rate of discharge, with the result that though the intra-duct pressure was increased the bile accumulates in the biliary tract. As the sphincter is able to withstand a pressure varying from 100 to 645 mm. water and the secretory pressure of the liver varies from 230 to 360 mm. water, the intraduct pressure can be considerably increased. This increased intraduct pressure produces dilatation of all extrahepatic ducts. The intrahepatic ducts are supported by the liver tissue and therefore do not dilate. The process producing dilatation of the ducts is maintained until the biliary tract will contain as much bile as the gallbladder, or, what seems to occur most often, the sphincter itself becomes dilated and is not able to withstand its normal pressure.

SUMMARY.

After removal of the gallbladder all the ducts outside the liver dilate. The sphincter at the entrance of the common bile duct into the duodenum is the main factor in producing this dilatation. After cholecystectomy this sphincter can withstand only a small percentage of the pressure it normally maintains. When all of the muscle fibers are dissected free from the intramural portion of the duct, the biliary tract does not dilate after the removal of the gallbladder.

Clinical Review of Cases in Which the Gallbladder was Removed.

Recently, I have been able to get reports from ten patients on whom cholecystectomies had been performed in our clinic more than fifteen years

ago. This series seems to demonstrate that a person can remain in ordinary good health for a number of years without a gallbladder.

The average age of the ten patients at the time of operation was 49.2 years; the oldest was 67 years and the youngest 37 years. The average duration of illness before operation was 6.5 years. The longest history was 12 years, and the shortest, 7 months. Nine of the ten patients are living; one had good health for two years, and died following an accident.

Seven patients gave a history of typical gallstone attacks, usually requiring a sedative for relief; in two cases jaundice was present in some of the more severe attacks. Of these seven patients who gave a typical history of gallbladder attacks, six were completely relieved by cholecystectomy, have had no subsequent attacks, and say that they digest their food well. Four of them state that they can eat anything. Two are troubled a good deal with constipation and at times have considerable gas, bloating, and sour stomach, but this condition is relieved by taking cathartics and they have no trouble when their bowels are regular. The remaining patient gave a 12-year history of typical gallbladder attacks and marked loss of weight (80 lbs.). Tubercle bacilli were found in the sputum. At operation a ruptured gallbladder with an abscess cavity and fistula into the transverse colon, and a stone in the cystic duct were found. After the operation this patient gained 80 lbs. in three years, and has maintained this weight to the present time with good general health. As a rule digestion is good although there is some gas and abdominal pain if he is careless in the selection of his food. Six of the seven, therefore, have good health at the present time.

The remaining three patients gave a history of gastric trouble at the time of operation; the chief complaint of one of them was "stomach trouble" by spells, epigastric pain after eating, vomiting, etc., with periods of remission. The other two patients in this group gave a history extending over a long period of time of more or less epigastric distress after meals, gas, continuous gastric trouble, sour eructations, vomiting, constipation, with no periods of remission. The patient whose attacks came on by spells, at operation was found to have a ruptured gallbladder with a fistula into the duodenum. Complete relief, good general health and digestion are reported since the cholecystectomy and the repair of the fistula. Of the two patients who had more or less continuous gastric trouble, one had a stone in the common duct, and the other a stone in the cystic duct and a large quantity of putty-like material in the gallbladder. These two patients claim very little relief from the operation; the former complains of gas and vomiting, constipation, rheumatism, neuralgia, and obesity; the latter says she has much gas and bloating which is more or less continuous as before the operation. The former is 58 years of age, weighs 240 lbs., and is able to do her own work; the latter, who is 74 years of age, also does most of her own housework.

A cholecystectomy was performed in each of these ten cases. Gallstones were found in the gallbladder in every instance. In three cases a stone obstructed the cystic duct; in two there were stones in the common duct. The gallbladder had ruptured in three instances: in one case into the duodenum; in the other two into the transverse mesocolon with an abscess cavity and fistula into the transverse colon. Therefore, it is to be noted that in some cases procedures other than cholecystectomy, such as repair of fistulas and plastic operations on the ducts, were necessary.

In conclusion it may be stated that after the removal of the gallbladder certain changes take place which are practically compensatory. The common duct always dilates; the pressure in it is greatly reduced so that there is probably no back pressure in the pancreatic duct; and the patency of the Oddi sphincter is almost if not entirely overcome. It is evident that in most instances, at least, a person can live as comfortably without a gallbladder as with one.

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ON THE ETIOLOGIC RELATIONSHIP EXISTING BETWEEN GASTRIC ULCER AND GASTRIC CANCER.*

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Nearly three years ago I reported observations upon 556 operatively and pathologically demonstrated instances of gastric cancer. The study was made particularly with the object of determining the evidences pointing to the relationship existing between gastric ulcer and cancer of the stomach. Since the above report, records have been made of 397 additional proved cases of gastric cancer. There is consequently a total of 953 instances of the disease now available for review. As a parallel study, I have tabulated the points of value in 544 operatively demonstrated cases of benign gastric ulcer. In this paper it is intended to indicate what have been emphasized by my study of the combined material.

I. THE NATURE OF GASTRIC ULCER.

(a) *Origin.*—All types of benign gastric ulcer may be produced experimentally by a wide variety of methods. Bolton classifies some of the more familiar causative agents as : 1, *bacteria* (pneumococci by Dieulafoy, staphylococci by Widal and Meslay, Staphylococcus aureus by Letulle, Bacillus pyocyaneus by Charrin and Ruffer, Bacillus dysenterii by Chantemesse and Widal, lactic acid bacillus by Wurtz and Leudet, bacillus of Pfeiffer by Slatineano, meningococcus of Weichselbaum by Gaudy and Griffon, Eberth's bacillus and Bacillus coli by Rodet and Zaidmann, streptococcus by Rosenow) ; 2, *bacterial toxins* (pyemias by Lebert and by Cohn, diphtheria toxin by Enriguez and Hallion and Rosenau and Anderson) ; 3, *cutaneous burns* (Welty, Ponfick, Silbermann, Parascandolo) ; 4, *poisons of metabolic origin* (Bolton's "gastrotoxin" injected intraperitoneally or subcutaneously) ; 5, *extrinsic poisons* (mercury salts, arsenious, acid, cantharidine, vegetable alkaloids, pilocarpine and atropine, copper sulphate) ; 6, *poisons introduced into the stomach* (corrosives and caustics), and, 7, *alterations in the gastric circulation* (vascular blocking, thrombi, emboli, arteriosclerosis, or nervous inhibition, external pressure). The type of ulcer produced experimentally may vary slightly according to the method employed in causing it. The resultant lesions are, however, essentially similar. There is loss of surface epithelium, necrosis, inflammatory edema, hemorrhage and glandular destruction. In the healing of ulcers, irrespective of the way they may have been produced, the essential feature consists in development of protective connective tissue by hyperplasia, with resultant scar.

(b) *Course.*—In neither experimental animals nor the human can the life history of any gastric ulcer be prognosed. This applies with respect both to the extent of the lesion and the amount of tissue destruction taking place. That most gastric ulcers have a natural tendency to heal is shown by the rapid appearance of scar formation in experimental animals, the discovery of healed ulcers at laparotomy or necropsy, and the clinical "cure" of ulcers by widely varying modes of medical or surgical treatment. The time required for ulcer formation or the healing of such seems to vary widely. There are factors concerned which appear to be largely individual. Certainly, chronicity of an ulcer pathologically does not necessarily coincide with chronicity in the sense of duration in terms of months or years. Huge, excavated calloused ulcers may form in a few weeks, and superficial bleeding erosions or small calloused ulcers may exist for years with no evident extension or marked connective-tissue hyperplasia.

(c) *Malignant Change.*—That some factor other than the persistent presence of an ulcer in a functionating stomach is necessary to result in the transformation of a benign process to a malignant one is apparently indicated by the fact that no experimental method has ever produced in animal or man a cancerous ulcer. Chronic irritation, infection, artificial anemia, starvation, overfeeding or local application of chemicals have all failed to bring about any such process as we see in ulcus carcinomatosum, *i. e.*, the power of atypic, unlimited growth with the ability to cause death of the host by malignant intoxication and metastases. Just how such change can be possible in man we are not able to state. Herein lies one of the strong points of argument for those clinicians and pathologists who claim that benign gastric ulcer rarely becomes malignant. No one has

*Read before the Chicago Medical Society, Jan. 8, 1917.

ever seen the actual transition from a benign process to cancer. In a given specimen examined microscopically, one can only say that cancer is or is not present. Atypical hyperplasias may render a diagnosis of early malignancy highly probable by one experienced in the examination of fresh tissue, but it appears impossible to state definitely that an ulcer which shows cancerous change in a few spots of its edge was ever anything else than malignant. Certainly one cannot say absolutely that the part of the mucosa that has necrosed and sloughed was benign. That part may have been wholly cancerous and prevented from wider incursions into the gastric wall by the very atypical hyperplasia, so-called, that remains for our study. What we see may be an indication of a histologic battle, already a partial victory. The subsequent spread of the few malignant rests, which are evident, may follow as a consequence of the exhaustion of the protective mechanism as a sequence of the first attempt at defence. When an ulcer is excised at laparotomy the histologic struggle is interrupted. One cannot satisfactorily prognose what the ultimate outcome wolud have been had the conflict been allowed to proceed. It is only when one observes gross cancerous ulceration with evidences of perigastric lymph-gland invasion that it is possible to state that the disease will progress to the death of the host.

(d) *Frequency of the Transition of Benign Gastric Ulcer to Cancer.*—There has been much misunderstanding on this point. The publication of reports claiming that the clinical type of dyspepsia which frequently precedes what is commonly recognized as a malignant form of gastric disease, is often not to be differentiated from that of chronic peptic ulcer, has given rise to a widespread impression that *vice versa* a like number of chronic gastric ulcers terminate as cancers. Clinical experience and pathologic facts are far from lending support to such conclusion. While our study of the early history of 953 instances of gastric cancer indicates that more than 65 per cent of the cases had a long dyspeptic course (apparently of benign type), preceding that which we clinically interpret as malignant, it does not establish the fact that a like proportion of benign gastric ulcers eventually terminate as cancer. Granted that the so-called precarcinomatous manifestations of gastric cancer closely simulate those of benign peptic ulcer, it is not unlikely that the common conception, clinically, of the symptomatology of ulcer and of cancer of the stomach is an imperfect one. As there is histologically a group of ulcers where sections do not permit of accurate differentiation between benignness and malignancy, it is not improbable that there are stages in both gastric ulcer and cancer where clinical segregation is impossible. The general conception of how ulcer and cancer of the stomach make themselves manifest clinically may be too narrow.

Pathologically, the strongest proof that exists of the frequency of the histologic transition of benign ulcer to malignant ulcer is advanced by MacCarty. From a most complete and painstaking study he has demonstrated that of 280 resected, chronic, calloused gastric ulcers, in which there was no clinical or gross surgical hint of malignancy, 63 per cent. showed evidences of atypical or undifferentiated cells in their hyperplastic edges. This is an important grouping of facts and has highly suggestive application clinically, but etiologically, as MacCarty frankly admits, it carries no proof that those ulcers showing atypical cell arrangement and structure were ever benign, histologically. While the length of the period of dyspepsia associated with the demonstration of these ulcers might clinically indicate a previously benign process, it does not prove that such actually existed. Our conception of the time of possible duration of malignancy may require readjustment. On purely empirical grounds, the clinical picture of gastric cancer has become firmly established as one of a perniciously and progressively downward process, with fatal termination within from one to two years. How long malignant alterations can exist in a stomach before clinical evidences present, we do not know—the disease may have been "latent" for years before local or constitutional changes became manifest. More than 1.5 per cent. of our cases of well-advanced gastric cancer gave rise to no symptoms directly pointing to a gastric upset. The common knowledge that gastric ulcers may exist without producing so-called "ulcer dyspepsia" is proved by the not infrequent finding of calloused gastric ulcers at laparotomy for other ailments or at necropsy. It is thus evident that it is impossible to indicate the histologic status of any gastric mucosa, from

clinical manifestations alone, previous to the clinical proof that cancer has developed; foundation for the neoplasm may have long been present either as ulcer or as some yet unknown cellular mal-arrangement or intracellular metabolic fault.

There has been much ancient and recent controversy among clinical observers relative to the frequency with which gastric ulcers terminate as cancers. The problem has yet to receive its final solution. While internists or surgeons with meagre laboratory or operating-room experience claim that a very small proportion of calloused gastric ulcers become cancers, the admission that such ulcers, clinically, do at times act as forerunners of cancer, creates at once a situation with diagnostic and prognostic importance. In 1882 Zenker stated it as his opinion that all gastric cancers arose from previous benign ulcers. Seven years later, Rosenheim supported this observation. In 1902, Futterer, after extensive experimental study, advanced the suggestion that gastric cancer develops with great frequency from pyloric ulcer, but that such transition is less common in ulcers located in other parts of the stomach. Fenwick, from experience mainly clinical, claims that but 3 per cent. of gastric ulcers become cancers, but offers no suggestions as to how it is possible to know which ulcers will remain benign and which will become cancerous. From a recent study, Friedenwald would place the frequency of cancers having originated from previously benign ulcers at 7.3 per cent. Moynihan claims that fully 66 per cent. of his cancer cases had been affected previously with chronic gastric ulcer. Sapeska, after a recent review of 100 cases of gastric cancer, could find but 10 instances where previous calloused ulcer had not apparently existed.

My study of 544 surgically demonstrated cases of gastric ulcer in no way indicates the frequency of cancer formation from such. That this is to be expected is emphasized by the fact that our cases are all classified upon a pathologic basis, *i. e.*, a specimen is either benign ulcer, undetermined ulcer histologically or gastric cancer, with or without the association of ulceration. Presuming that our 544 cases of gastric ulcer form part of a group of ulcer cases which arose at some time previously, it is manifestly impossible to tell what course the original ulcer group has taken—namely, how many have healed spontaneously or with the aid of medical care, how many have survived as benign ulcer cases, or on how many have surgical procedures been performed, and how many have terminated as cancers. In our opinion the above facts furnish insurmountable obstacles to the possibility of any, even approximately correct, estimate being made with regard to the frequency with which benign gastric ulcer becomes cancer. Whatever may be individual opinion or clinical experience, this phase of the subject remains, as yet, unsettled.

(e) *Clinical Variations in the Symptom-Complex of Gastric Ulcer.*—That a difference of opinion exists among clinicians with regard to what set of symptoms and signs indicate peptic ulcer is readily noted upon the perusal of the observations of those men who have had experience with any considerable material. Symptom-complexes, based solely upon individual interpretation of a group of complaints, signs or tests, cannot expect unqualified acceptance. However, when certain clinical pictures of disease are found in association with the pathologic proof that such disease exists, symptom-complexes can be reasonably formulated, and *only* when measured by this rule are such above criticism. The close simulation of the symptomatology of uncomplicated gastric ulcer by disease of other abdominal organs (gall-bladder, appendix, kidney, spinal cord, etc.), would appear to suggest that the clinical manifestations often associated with such an ulcer, are the evidences of an abdominal or a constitutional disarrangement, in the course of which gastric ulceration is an incident or an end-result. Certain support to this conception of the disease is furnished by the experimental production of gastric ulcers by many and widely differing methods and agents. It is within the experience of all who have had a liberal training, that not infrequently laparotomy or necropsy, at the most competent hands, fails to demonstrate ulceration in patients presenting so-called characteristic clinical manifestations of the ailment. Conversely, it is equally surprising to discover well-advanced gastric ulcer that has produced no symptoms referable to the stomach, at laparotomy for other diseases or necropsy following *exitus* consequent upon accident or extra-abdominal affection. From the foregoing, it would appear likely that the symptomatology which is commonly associated with

gastric ulcer, clinically, is the composite manifestation of a group of derangements among which we may include ulcer of the stomach. The above would appear to impose another limitation to the accuracy with which it is possible to determine the relationship between gastric ulcer and gastric cancer. It is not beyond probability that masses of evidence which have been adduced from purely clinical symptomatology determining the diagnosis are not germane to the subject, inasmuch as in many instances peptic ulcer did not actually exist.

(f) *Malignant Change in Duodenal Ulcer.*—In a consecutive series, our 544 operatively demonstrated instances of gastric ulcer were found to exist in 1,724 cases of peptic ulcer. That is, there were 1,181 cases of duodenal ulcer. It is thus seen that the ratio existing between the frequency of gastric ulcer and duodenal ulcer is as 1:2.45. While duodenal ulcer is much more frequent than is gastric ulcer, cancer of the duodenum is very uncommon. From a careful perusal of records, I noted it 9 times in 1,181 cases of duodenal ulcer. It has been advanced that if gastric ulcer frequently undergoes malignant transition, then one should expect a high ratio of malignant duodenal ulcers. When cancer of the duodenum is found, it is commonly located at or near the papilla of Vater. In such situations the viscus is liable to injury from gallstones, altered secretions of the liver and the pancreas, and infective processes from the gall-tract. Moreover, at the papilla of Vater, there may be stagnation of duodenal contents or slowing of the rate of discharge of the digestive juices from the liver and the pancreas. It should also be emphasized that ordinarily there is little opportunity of traumata to the duodenal mucosa as a consequence of retarded food progression. Food remains for a very brief time in the duodenum, provided stenoses do not exist. The opposite condition exists in the stomach, in which event there is abundant time for bacterial, chemical or mechanical injury to a gastric lining already robbed of some of its resistance. That the duodenum appears to have an inherent protective mechanism against malignancy appears to be demonstrated by the observation that only rarely does cancer of the stomach extensively involve the duodenum by direct extension. The different character of the tissue of this part of the gut seems to be evidenced by the fact that not infrequently duodenal ulcers, which have extended to the pylorus, assume malignant change in the stomach edge and nowhere else.

(g) *Gastro-Enterostomy as a Protection Against Malignant Transition of Gastric Ulcer.*—Given a gastric ulcer proved to exist by laparotomy, if such ulcer be not excised, it appears to have been shown by competent observers that after gastro-enterostomy malignancy rarely supervenes. In our series, there were eleven instances where apparently benign gastric ulcer appeared later with cancer of the stomach after anterior or posterior gastro-enterostomy had been performed. Of course, inasmuch as none of these ulcers had been microscopically examined before gastro-enterostomy, it is not possible to state that such were not malignant at the time that the operation was performed. It should be recalled that modern surgeons do not consider gastro-enterostomy as a mere operation of "drainage." It is well recognized that after such surgical procedure the physiology of the stomach has been altered in many particulars; not rarely, the stomach's emptying power is accelerated and thus stagnant food, often very foul bacteriologically, remains for a shorter time in contact with a damaged mucosa; blood and lymph circulation may be appreciably changed as a consequence of relief from dilatation of the stomach and alterations in the peristaltic rhythm occur in nearly 85 per cent. of gastric extracts of cases where gastro-enterostomy has been made, it is possible to demonstrate by chemical or microscopic means, both duodenal and jejunal contents—material from parts of the gut relatively immune to malignant disease,—and finally, after gastro-enterostomy, we were able to demonstrate in a series of 211 consecutive instances of gastric ulcer, an average decrease of 19 free hydrochloric acid, together with appreciable diminution in peptolysis. Clinically, it is the general experience that in malignant disease of the stomach not associated with stenoses, gastro-enterostomy appears to grant a longer lease of life than where such has not been performed.

2. THE NATURE OF GASTRIC CANCER.

(a) *Origin.*—No one has ever seen the actual beginnings, histologically, of malignant disease of the stomach. While the experiments in tumor

transmission of Rous and Murphy reveal certain tissue reactions to the presence of artificially introduced foreign cells, it cannot be said that such reactions are entirely comparable to those occurring when the tumor arises spontaneously from native tissue. MacCarty has apparently shown that malignancy begins as a form of hyperplasia of existing cell structures. This hyperplasia results in functionally undifferentiated and architecturally imperfect primary cell eliments. This hyperplasia varies in degree, and at certain stages cannot be segregated, histologically, from the forms of hyperplasia common in processes definitely benign. Apparently, in certain of these grades of hyperplasia, the line of demarcation between the malignant and the benign is, with our present methods of examination, extremely fine. In the case of gastric cancer, however, once this "halting stage" is passed, the distinction is sharp and the progress of the disease rapid. Evidence strongly supporting the pathologic proof that malignancy may develop in gastric ulcers that were apparently benign, is furnished by the histologic observation of all degrees of hyperplasia—benign, indeterminate and malignant—in sections through different portions of excised ulcers.

(b) *Course.*—Unless total extirpation is possible, gastric cancer produces death of its host. Unlimited growth, with the property of developing metastases in near or distant organs, rapidly results in fatal malignant intoxication, hemorrhage, starvation or exhaustion. Rarely do proved instances of gastric cancer live longer than three years. Unless there is early surgical interference, the majority of hosts die within a year following the onset of symptoms. In our 953 cases of cancer of the stomach, the average duration of all symptoms of a clinically malignant type was 6.9 months previous to the patient's coming for relief. There are wide variations in the rate of progress of the disease. The same type of ailment, histologically, proceeds with a strikingly different speed in different individuals. The factors concerned in the ability of gastric mucosa to resist cancer invasion are not as yet understood. One individual may be overwhelmed with the disease in a few weeks while another may successfully resist the process for several years.

TABLE I.

SUMMARY OF FACTS FROM STUDY OF 953 OPERATIVELY AND PATHOLOGICALLY DEMONSTRATED CASES OF GASTRIC CANCER

1. Dyspeptic Disturbance, Clinically "Ulcer," Previous to a Clinically Malignant Gastric Disease in.....543 Cases or 57%
2. Dyspeptic Disturbance, Clinically "Atypic Ulcer," Previous to a Clinically Malignant Gastric Disease in..... 93 Cases or 9%
3. A Malignant Gastric Disease Appeared *Without Previous Gastric Disturbance* in .....317 Cases or 33.7%

THAT IS

Of *953 Proven Cases* of Gastric Cancer—in *646 Cases*, or 66 percent, there was a chronic dyspeptic ailment, of the clinical type commonly associated with *Gastric Ulcer, Preceding the Malignant Period.*

The above observations offer suggestions respecting the possibilities for variability in the symptom-complex of gastric cancer. Our records show that more than 1.5 per cent of operatively demonstrated instances of the disease gave no pre-laparotomy manifestations that pointed to an ailment of the stomach. Clinically, however, the major portion of the cases fell into two great groups, with respect to course: 1, *Instances where a chronic dyspeptic disturbance clinically benign in character, was followed by an ailment of the stomach which from its inception appeared clinically malignant, and,* 2, *instances where a continuous and progressively downward disease, clinically malignant, arose in individuals who had no previous digestive faults.*

TABLE 2

SUMMARY OF CLINICAL FACTS—BENIGN GASTRIC ULCER AND GASTRIC CANCER

1. Average *Duration of All Symptoms* of 544 Cases of Benign Gastric Ulcer..... 11.1 years
2. Average Duration of Clinically *Non-Malignant Dyspeptic Period* of "Ulcer type" of 646 Cases *later evidencing Malignancy*..... 10.8 years
3. Average Duration of *Clinically* Malignant Dyspeptic Period of Cases in Section 2 (above)...6+ *months*
4. Average Duration of *All Symptoms* of 317 Cases, *Clinically Malignant from Inception*.... 6.9 *months*

Group 1.—There were 543 cases (57 per cent.) comprising this class. In 438 instances (46 per cent.) the portion of the history preceding that apparently carcinomatous was clinically that which is commonly accepted as meaning benign gastric ulcer. In 93 cases (9 per cent.) the dyspepsia previous to the onset of clinical malignancy was of benign type, and of the character which is commonly associated, clinically, with irregular gastric ulcer. The average duration of all symptoms in the apparently benign portion of the history was 10.8 years for both divisions. The average duration of all symptoms which clinically indicated the onset of a malignant disease was just over 6 months.

On account of the variability in a clinical complex indicating absolutely the presence of gastric ulcer, the above figures do not actually prove that peptic ulcer had existed before the beginning of a gastric disease which was later shown to be cancer. It is significant, however, to recall that clinically the segregation of the cases making up this group, conforms to the accepted clinical complex of gastric ulcer, and that in large series of cases when patients presenting such symptoms are operated upon, chronic, gastric ulcers are found. Moreover, on further analysis of the laparotomy findings in cases making up this group, above defined, a disease process still localized and frequently presenting the microscopic characteristics of chronic indurated ulcer was demonstrated. Cancerous ulcers were found in nearly 42 per cent. of instances, and with such was associated the minimum of perigastric, lymph-gland invasion. Finally, certain interesting and perhaps suggestive facts may be adduced from note of the incidence of hemorrhage in our series of gastric cancer. There were 162 instances where during the course of the entire ailment, gross hemorrhage had occurred (17 per cent). Of the whole number bleeding 97 cases (54 per cent.) were included in the group where dyspepsia of the ulcer type, clinically, had preceded that evidently cancerous. Of the whole number with history of melena or hematemesis, 83 cases (51 per cent.) had bled at least two years previous to their coming under observation. Of the 79 instances having hemorrhage within two years of observation, 51 cases (66 per cent.) gave histories classifying them into the ulcer-dyspepsia, clinically, preceding clinical cancer.

TABLE 3

GROSS HEMORRHAGE IN 544 CASES OF BENIGN GASTRIC ULCER AND 953 CASES OF GASTRIC CANCER

GASTRIC ULCER

Hematemesis alone	30 cases, or 5.5%
Melena alone	14 cases, or 2.5%
Hematemesis with melena	146 cases, or 27.0%
Total Bleeding	190 cases, or 35.0%

GASTRIC CANCER

Hematemesis or Melena in	162 cases, or 17.0%
Gross Hemorrhage at least 2 years previous to onset of Malignant Gastric Ailment Clinically in	97 cases, or 54.0% of the Hemorrhage Class

Of 79 Cases Exhibiting Hemorrhage *within 2 years* of Coming Under *Observation for Malignancy*—51 cases (66%) gave histories classifying them into the "ulcer-before cancer" group.

From the above it is apparent that in the large majority of gastric cancers there is a previous long-term history of a type which it is impossible to separate clinically from benign, gastric ulcer dyspepsia; that the minority of gastric cancers arise in the stomachs of individuals who have previously had no gastric upsets; and that recognition of these facts permits laparotomy at a stage of the disease when the maximum advantages, surgically, can be taken of a localized process, with a consequent high proportion of cures.

TABLE 4.

SUMMARY OF TEST MEAL ACIDITIES OF *544 Cases Benign Gastric Ulcer and 953 Cases of Gastric Cancer*

GASTRIC ULCER

Average Free Hcl	Retention Group	57.0
	Non-retention Group	41.0
Average Combined Hcl	Retention Group	16.0
	Non-retention Group	10.0
Average Total Acidity	Retention Group	76.0
	Non-retention Group	52.0

Hcl absent in *4 cases.*
Lactic Acid present in *no instance.*

GASTRIC CANCER

Average Free Hcl	Retention Group	26.0
	Non-retention Group	17.0
Average Combined Hcl	Retention Group	17.0
	Non-retention Group	7.0
Average Total Acidity	Retention Group	40.0
	Non-retention Group	15.0
Hcl absent in	Retention Group	66%
	Non-retention Group	32%
Lactic Acid present in	Retention Group	68%
	Non-retention Group	34%

Group 2.—In this class—that forming the group commonly considered, clinically, gastric cancer—there were 337 cases (35.7 per cent.). The average duration of all symptoms of stomach malfunction was 6.9 months. Careful questioning failed to elicit dyspepsia of any clinical variety, previous to the inception of that evidently malignant, from these patients. This observation does not prove that such individuals had had no gastric pathology prior to their appearing with cancer. While it is relatively uncommon for ulcer or cancer to exist without the production of digestive upset, as we have already mentioned, such a condition is not absolutely impossible. That gastric ulcer had not existed for any considerable period previous to the onset of cancer appears highly probable when we recall the fact that fully 4 of every 5 instances of surgically proved cases of that disease are associated with a fairly definite train of signs and symptoms. That gastric cancer had lain "latent" for a considerable time before giving rise to clinical manifestations, is, of course, possible, but in view of our knowledge of malignant processes in other body tissues, scarcely probable. Inasmuch as we have very little definite information with regard to the rate of growth either of gastric ulcer or

cancer in terms of weeks, months or years, it is not possible to state that the whole gamut of initial trauma to the gastric lining, ulceration and malignant change is not (in instances in this group) run through in relatively short time. In this class of cases at laparotomy, cancerous ulcers were demonstrated in 67 cases (20 per cent). These may have resulted from ulcers previously benign, from necrosis and sloughing of primary cancers, or the malignancy may have arisen primarily in ulcer form. From our present histologic knowledge, there is nothing revealed upon the examination of these neoplasms that indicates the type of the initial process.

(c) *Position in the Stomach Wall of Gastric Ulcers and Gastric Cancers.*—In 37 per cent. of our cases of cancer, the neoplasm was located at the pylorus; in 28.2 per cent. on the lesser curvature or antrum; in 18.3 per cent. it was general; in 6.8 per cent. on the posterior wall; in 5 per cent. at the cardia; in 1.3 per cent. on the greater curvature; in 0.65 per cent. at the fundus, and in 0.5 per cent. on the anterior wall. In approximately 3 per cent. of instances the location of the growth was not exactly determined.

TABLE 5.

SITUATION IN THE STOMACH WALLS OF BENIGN GASTRIC ULCERS

544 Operatively and Pathologically Demonstrated Cases

Situation—	No. of Cases	Per Cent
Pyloric	255	47.0
Prepyloric	19	3.5
Lesser Curvature	168	31.0
Near Cardia	39	7.1
Posterior Wall	46	8.5
Anterior Wall	17	3.8
Total	544	99.9

The above figures are to be contrasted with such given for the situation of gastric cancers by observers who have studied mainly postmortem material (Welch, Brinton, Lebert and others). To anyone who has examined the end-results of gastric cancer at necropsy, it is not necessary to state that at such times accurate localization of the initial seat of the disease is impossible. These figures for situation of gastric cancer that have been returned from the laparotomy examination of patients are of considerable significance, when it is observed that they approximate closely the figures given by Welch and myself for the location of chronic, benign, indurated gastric ulcer. From the etiologic point of view, there may be more than a coincidence between the similarity of situation of gastric cancer and gastric ulcer.

TABLE 6

SITUATION IN THE STOMACH WALL OF GASTRIC CANCERS

953 Operatively and Pathologically Demonstrated Cases

Situation—	No. of Cases	Per Cent
Pyloric	353	37.0
Antrum and Lesser Curvature	277	29.1
Posterior Wall	65	6.8
Cardia	48	5.1
Greater Curvature	14	1.5
Anterior Wall	11	1.2
General	152	16.0
Not Definite	33	3.3
Total	953	100.

RECAPITULATION.

Review is made of certain phases suggested by the study of 953 operatively and pathologically demonstrated cases of gastric cancer and of 544 similarly proved instances of benign, peptic ulcer. Particular attention has been paid to the search for actual facts demonstrating the existence of an etiologic relationship between gastric cancer and gastric ulcer.

It seems to have been shown that benign gastric ulcer can be produced in a multitude of ways, the method of production having but relative effect upon the ulcer resulting, pathologically. It seems that in a given gastric ulcer it is impossible to prognose its course, duration or type of termination.

The clinical course of any gastric ulcer is highly individual. While it is true that we have undoubted histologic proof that many ulcers heal, we have yet no means of determining, clinically, in a given case, whether or no such ulcer will heal in its acute stage, will tend to benign chronicity or will become the basis of a future cancer. It is reasonable to suppose, however, from the mass of data carefully studied, which has accumulated during the past decade, that many gastric erosions and simple ulcers have a natural tendency toward healing. This not uncommonly occurs wholly irrespective of the clinical type of treatment that is carried out. It is also a commonly observed fact that a given ulcer will tend to chronicity and recurrence in spite of all known methods of therapy. In such cases, prognosis is largely dependent upon intensely individualized pathology. If the process continues benign, the resultant condition demanding treatment is largely accidental. Pyloric stenosis with gastric dilatation, hour-glass contraction, perforation involving other viscera, or malignant

degeneration may occur without regard to our clinical care. Each case is a law unto itself.

The future course of chronic gastric ulcer is dependent wholly upon tissue reaction to hyperplasia. When the clinical pathologist is not uncommonly unable to differentiate between benign and malignant hyperplasia, it is very difficult to see how the internist is to be expected to prognose the future course of any gastric ulcer. Certainly from our studies of gastric cancer, it would seem that more cases of this affection developed from previous benign ulcer than has heretofore been generally recognized.

There are no experimental, clinical or pathological data that absolutely demonstrate the mechanism of the malignant transition of benign gastric ulcer. This problem will apparently remain unsolved until the exact nature of the mechanism of malignant processes in general is determined.

Clinically, the histories of instances of gastric cancer strongly suggest that such neoplasm arises most frequently from chronic, calloused, gastric ulcer, clinically benign. It would appear that clinically it is impossible to segregate that group of chronic gastric ulcers which will undergo change to cancers from that which will continue as self-limited, benign processes. On account of the uncertainty in this regard, free excision of all chronic gastric ulcers should be performed whenever such procedure is mechanically possible. That this is a most important feature of cancer prophylaxis is proved by the fact that when gastric cancer can be definitely diagnosed, clinically and microscopically, at laparotomy, hope of radical cure is slight. The knowledge of the foregoing facts imposes a moral responsibility upon internists and surgeons with respect both to the individual patient and the human family.

SURGICAL COMPLICATIONS OF PREGNANCY.

W. C. Danforth, B. S., M. D., F. A. C. S.,
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If one should attempt to discuss all of the surgical complications which may concern pregnant women it would be necessary to review almost the entire field of surgery, for almost any surgical condition may be found during pregnancy which would occur at any other time. I shall, therefore, for the purpose of our discussion this evening, confine myself to a few conditions which may be looked upon as direct complications of the pregnant state and in which some differences of opinion may exist as to treatment, and shall exclude all traumatisms and surgical diseases of ductless glands. I shall discuss first the relationship of appendicitis to pregnancy.

The occurrence of appendicitis during pregnancy is not particularly common. While no statistics are available showing the exact percentage of pregnancies which are accompanied by appendicitis, it is quite safe to say that the proportion must be very small. Obstetricians of large experience are on record as having seen but few or none. It, however, does occur, and when found it merits careful attention.

In the first place one must be quite certain of the diagnosis. The confusion of appendicitis with pyelo-ureteritis is not uncommon. More than one woman has been operated upon for supposed appendicitis when the infection was in reality in her kidney. Quite recently a woman appeared upon my own ward service who had been sent in by a physician with a diagnosis of acute appendicitis and who had been examined by an interne who made a similar diagnosis, in whom the typical right sided pregnancy pyelitis existed. No diagnosis of acute appendicitis during pregnancy should ever be made until a careful examination of the urine, including microscopic examination for pus, has been made. One should not omit to ascertain if there be tenderness over either kidney. The right sided abdominal tenderness will be found in some of these cases which is exceedingly like that of appendicitis and these, when coupled with a rise of temperature, nausea, or vomiting, and perhaps accelerated pulse, will deceive the unwary observer who forgets the frequency of kidney infection at this time and does not examine the urine. In making the diagnosis of appendicitis one should not forget the fact that a certain increase in the number of leukocytes is normal in pregnancy. This fact has recently been confirmed by the work of Baer of Chicago and a Spanish observer, Chamorro.

Appendicitis and ectopic pregnancy have been confused many times and this confusion has occurred in the hands of exceedingly competent men. The confusion of diagnosis, pro-

vided it be followed by immediate operation, may be no great calamity as either condition calls for immediate interference. The ruptured ectopic, if the other clinical signs of rupture be not outspoken, may confuse the observer from the fact that a rupture with intra-abdominal hemorrhage is followed by leukocytosis. Two such cases which I have seen within the last few months have had leukocytosis occur of 30,000 and 38,000 respectively. An acute attack of appendicitis during pregnancy calls for an immediate operation. One should not run the risk of permitting a perforation and subsequent peritonitis or abscess, for the prognosis of neither of these is as good during pregnancy as at other times. Incision should be made with some regard to the size of the uterus. During the latter months it should be made higher up to allow for the displacement of the cecum. Morphin should be used post-operatively in order to avoid as far as possible any tendency to uterine contractions. Should an abscess have developed, this should be opened with as little trauma as possible, after which morphin should be given to diminish the danger of premature labor until granulation has advanced as far as possible in the abscess cavity. It is very dangerous to allow labor to occur with an abscess present, for the abdominal and uterine contractions would be apt to rupture the abscess wall, which would cause a peritonitis. Should, however, a peritonitis be present, opinion differs somewhat as to the course to pursue, some believing merely in drainage after the usual method, while others, notably DeLee, favor hysterectomy, with wide drainage of the pelvis. I should be inclined to favor the latter course. Certainly the presence of the uterus undergoing involution would be likely to be a factor against the patient's recovery.

The most important point in the treatment of appendicitis during pregnancy is, if possible, to remove the inflamed organ previous to perforation, as the mortality subsequent to perforation is estimated at 40 per cent. The history of one or more mild attacks in the past, with no evidence of a definite acute attack, requires merely careful observation, operation only being done if the acute attack occurs. One other fact peculiar to pregnancy should be spoken of, and that is, that a certain number of pregnant women have sensations of discomfort or pain in the lower right abdomen which may be caused by compressing the appendix or cecum between the uterine and posterior abdominal walls as the uterine body rotates to the right as it rises out of the pelvis.

Cholecystitis. Attacks of cholecystitis are not so common as appendicitis and as a rule do not occur before the fifth month. If possible, operation should be deferred until after labor, although an acutely distended gall bladder requires operative relief whenever it occurs. It would be unwise to allow labor to occur with a greatly distended gall bladder for fear the forces of labor might cause it to rupture. These cases, as a rule, do not cause sufficient disturbance to necessitate operative interference and may be tided along to a later date. If operation for empyaema or distension of the gall bladder from any cause is unavoidable, the advantages of nitrous-oxide and local anesthesia should be considered.

Salpingitis. Acute attacks of salpingitis are not common during pregnancy. This is a logical conclusion to the fact that salpingitis is usually a bilateral process and as sterility follows a large percentage of attacks of salpingitis, pregnancy is very rare in these cases. Should, however, an acute attack of salpingitis occur, there is no reason why it should not be treated exactly as it would be at other times, with the exception possibly of the use of hot douches. Operation should be done only for abscess formation and laparotomy will be very rarely indicated.

Ovarian Tumor. This is not an especially frequent complication of pregnancy. McKerron, who has published the most complete article on the subject in the English language, estimates the usual frequency to be one in about 1,500 pregnancies. Fehling, in 17,832 cases, found ovarian tumor only twenty times. Of the reported cases of ovarian tumor in pregnancy dermoids represent about 25 per cent of the tumors. So far as the influence of the tumor upon the progress of pregnancy is concerned, in a great majority of cases pregnancy may advance without being influenced by the presence of the tumor. The complications during pregnancy which may occur are torsion of the pedicle, rupture of the cyst, suppuration or suppuration and rupture. Twisting of the pedicle will occur about three times as often in ovarian tumor associated with pregnancy as in those found in the non-pregnant state. McKerron believes that it may

be expected to occur in one out of eight cases. Very large cysts predispose to abortion, this probably being due to the efforts of nature to relieve the increasing intra-abdominal pressure. This is not universally true, for some women with exceedingly large ovarian tumors go through to term. As to the influence of the tumor upon labor, one may say that the situation of the mass is of more importance than its size. A small mass at the pelvic inlet or wedged within the pelvis, is of very much more importance so far as its influence upon the course of labor is concerned than a much larger one situated high in the abdomen. The majority of opinion at present is in favor of the immediate removal of ovarian tumors as soon as recognized. It has been urged of late that operation might be deferred until the fifth or sixth month in order to avoid the possible removal of a functionating corpus luteum. If a corpus luteum should chance to be in the ovary, which is also the seat of a cystic tumor, its removal in the early months will increase greatly the likelihood of abortion.

The treatment of ovarian tumor during labor depends very greatly upon the conditions present. In general, however, the presence of a tumor obstructing delivery may be looked upon as a serious complication. In 720 of the 1,290 cases collected by McKerron, the mass was allowed to remain until pregnancy terminated. Of these 152 women died and this mortality would have been greatly increased if in some of the cases operation had not been done during labor or immediately thereafter. In addition, 30 per cent of the babies were lost.

If the tumor may be pushed up out of the pelvis from below, labor may be allowed to proceed naturally or may be instrumentally terminated. If this is not possible and if conditions are not present which would permit a safe caesarean section, it is best to open the abdomen, remove the tumor and then deliver from below.

If a tumor be not discovered until toward the end of pregnancy and if it lie in a position which would permit it to seriously obstruct labor, it would probably be very difficult to remove it by laparotomy. Under these conditions the case may be more safely allowed to go to term and to undergo a caesarean section with the removal of the tumor mass at the same time. I should be rather inclined, if the diagnosis of ovarian cyst is made early in pregnancy, to remove it immediately in spite of the possible danger of removing the functionating corpus luteum. The danger both to mother and child if the tumor be permitted to remain until term, outweighs in importance the possible chance of premature labor. My own experience with this complication comprises three cases. In one of these a primipara of 40 in whom the tumor mass lay over the pelvic inlet, and in whom, of course, a later pregnancy was scarcely possible, the tumor was not disturbed during pregnancy, but caesarean section with removal of the tumor was done at term. In another case in which the tumor was in the lower half of the abdomen, about four inches in diameter and freely movable, it was removed at about the fourth month. This case went to term normally. This tumor turned out to be an adeno-fibroma, one of the solid tumors of the ovary. These are rather rare and comprise about 2 per cent of all ovarian tumors. The third case was one of a young woman who was not seen until during the seventh month. The mass was felt wedged firmly in the pelvic inlet and I was not certain whether it was a fibroid or an ovarian tumor. She was delivered by caesarean section at term with removal of the tumor.

As to the question of operative procedures in general, during pregnancy, it should be said that any operative attack of whatever nature or for whatever condition it may be done, should be carried out with the greatest possible gentleness and with the utmost speed. When the abdomen is opened the uterus should, if possible, not be touched, and if necessity compels that it be handled, it should be as little as possible and with the greatest attainable gentleness.

If it is necessary to introduce drains for the relief of a septic condition it should not be permitted, if it is possible to avoid it, to come in contact with the uterine wall. The slow hesitatting operator, or he whose manipulations are characterized by roughness, has no place in the abdomen of the pregnant woman. In operating upon the pregnant woman we are operating upon a patient who is physiologically slightly handicapped, nevertheless, operative procedures in competent hands are carried out with a high degree of safety. Abortion or premature labor must be expected in a certain per cent of cases. This mishap in the case of ovariotomy is esti-

mated by Flatau and Wahmer as 17 and 22.4 per cent, respectively. The maternal mortality is estimated by different authors to be from 2.7 per cent to 5.9 per cent.

It is well to follow any operative procedure by a dose of morphin to decrease the likelihood of uterine contractions. As to the anesthetic it should be said that chloroform should not be used because its destructive effect upon the parenchymatous organs, both of mother and child, renders it peculiarly unfit for use during pregnancy.

In considering the question of any operative procedure during pregnancy one should be convinced of the necessity that it be done for nothing should be done during pregnancy, which can be deferred with reasonable safety. This question has been very well epitomized by Ochsner in a recent discussion, as follows: "Do no surgery during pregnancy which can possibly be avoided, but do not omit any surgery which is genuinely necessary."

MEDICAL COMPLICATIONS OF PREGNANCY.*

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The complications under this heading can include so many abnormal systemic disorders, that I thought that it would be more profitable to devote the time to those complications which had to do with the heart and with the organ so closely associated with it, in pregnancy, the kidney.

During the first three months of pregnancy there is very little added strain on the normal heart, but from the fourth month on there is an increasing work for the heart to accomplish. The blood pressure becomes elevated and the volume of blood is slightly increased. The resistance to the blood flow does not diminish, so there is a gradual relative enlargement of the left ventricle, and any breaking down of the heart action is due to some pregnancy toxin, valvular deficiency, muscular weakening, or to some mechanical cause, following too strenuous exercise.

Heart lesions do not usually make prognosis grave unless very advanced. This is particularly true for uncomplicated valvular heart lesions in which even repeated pregnancies do not necessarily render a grave prognosis. One well known authority makes the statement that less than one per cent of heart lesions are fatal during pregnancy. A recent report from the Vienna Clinic of sixty cases show that forty were affected with mitral insufficiency, of which twenty-six compensated; all mothers saved, but three dead babies; fourteen uncompensated, one mother and two babies lost. Five had a mitral stenosis. One compensated and no mortality; four uncompensated, with the loss of three of the babies. Twenty-seven had double mitral lesions. Ten compensated, with loss of two of the babies; seventeen, uncompensated, with loss of ten of the babies.

It is not only our duty to carry a woman through her pregnancy with no mortality to either mother or child, but to watch that affected heart from every angle, in order that when the labor is over, we will have a heart that is still compensating and not one that has lost all of its reserve power and is to be followed by all the signs of a broken compensation. Therefore, certain rules must be laid down for those patients who, when they come to you, are suffering with some heart lesion. Such a woman is more susceptible to toxemias and the functions of her skin, digestive organs, and kidneys must be carefully watched. A large amount of fresh air is needed, for her blood has not its proper supply of oxygen. Outdoor exercise should be regulated in accordance with the reserve power of her heart. Her diet should be strictly supervised. Her lungs should be examined regularly and any signs of failing circulation noted. And when labor starts, no matter how slight the lesion from which the patient suffers, no matter how well she has passed through her pregnancy, all means available to reduce the strain on the affected heart must be used. Therefore, during the first stage of labor small doses of morphin are indicated, especially when there is any sign of failing strength of the heart action. During the second stage nitrous oxide and oxygen should be used with every pain. If there should be any question as to whether or not the mother would be able to deliver her baby, no time should be lost in increasing the amount of anesthetic beyond the analgesic stage to deep anesthesia and a forceps delivery performed, or in some cases caesarean section. The after care of the patient should consist of proper medication, prolonged rest and carefully regulated exercise. The report

*Read before the Evanston Medical Society, Jan. 22, 1917.

on two cases, I think, will illustrate what has just been emphasized.

Pregnancy complicated by mitral stenosis, allowed to continue, age of patient, 24; in the third month of her pregnancy, was referred to the Brooklyn Hospital for consideration of termination of pregnancy. Her chief complaint was rapid heart action and nervousness. She had suffered from chorea when a child. She has had symptoms for a year. They have not become worse during the last three months. Examination by the internist showed a well nourished woman, weight 103 pounds. Her lungs are sound. The functions of her kidneys and digestive organs are normal. She has no sign of circulatory derangement. Her thyroid gland is somewhat enlarged. Her heart is normal in size; left border 10 cm. from midsternal line. Right border at right sternal margin. There is a presystolic thrill at the apex. Diastolic shock is felt over the base. Her pulse is 100-120. Her blood pressure is 145 systolic and 90 diastolic. Diagnosis, mitral stenosis with regurgitation.

In deciding on a plan of treatment for the patient, the following points were given consideration. Her heart lesion, mitral stenosis, is an unfavorable one. A blood pressure already above the normal and a trace of albumin in the urine still further complicate the situation. On the other hand, she is young. Her heart muscle is sound. Compensation is perfect. She is not any worse now than before pregnancy began. She will never be in a more favorable condition to carry a pregnancy to term. It is estimated that her cardiac reserve is sufficient for the strain of this pregnancy provided that toxemia of pregnancy can be avoided. If she should go through to term, she will be delivered by caesarean section, and sterilized at the same time. She will be sterilized because the care of more than one child would be a greater burden than her heart could stand.

The following case shows how the reserve force diminishes with age and frequent pregnancies, and how the burden of an abnormal pregnancy or difficult labor will break the compensation which has been sufficient for a normal pregnancy and easy labor:

Mrs. A. M., admitted to Bushwick Hospital on Jan. 24, 1916, in labor at the end of the eighth month of her thirteenth pregnancy. She has pains every five minutes. She suffers with dyspnea, orthopnea, dizziness, and spots before the eyes. Her respiration is rapid and labored, her color is dark, her lips and nails blue, her limbs and face swollen, her abdomen enormously distended. Her heart is enlarged to right and left. The apex beat is diffused. There is a loud blowing, systolic thrill at the apex transmitted to the axilla. There are sibilant sonorous rales over the chest, and many moist rales over the bases of the lungs. The uterus is large, tense, and greatly distended. The perineum is relaxed, vagina roomy, cervix, soft, thin, and dilated three fingers. Membranes tense and bulging. She had rheumatism when young. Otherwise good health. Has had no heart symptoms until the present pregnancy. Has had twelve easy labors without cardia distress. At the sixth month of the present pregnancy dyspnea, edema of limbs, and precordial pain. She recovered after three weeks in bed.

Diagnosis—Labor complicated by mitral incompetency with broken compensation.

Treatment—She was given morphin and digalin per hypo, and the membranes ruptured. A certain amount of relief was obtained in this way. She was kept under the influence of morphin and the heart supported by large doses of digalin and allowed to proceed. After four hours she was delivered of triplets. She made a normal convalescence. Her heart rapidly regained tone. She left the hospital in good condition and has had no return of dyspnea or rapid heart.

I have chosen two subjects under kidney complications, pyelitis or pregnancy and eclampsia. Both can be called border-line complications under the heading of surgical complications, but I shall endeavor to limit my words to the medical side.

Etiology. A. Predisposing causes:

1. Pregnancy, usually causing symptoms about the fifth or sixth month, because at this time there is a beginning pressure on one or both ureters at the pelvic brim owing to the greatest diameter of the uterus occurring opposite this level.

2. Previous chronic infections also predispose to this complication.

B. Exciting cause: Five varieties of microorganisms have been shown to play an important part in this infection: Coli communis, Staphylococcus pyogenes aureus, streptococcus, gonococcus, and the tubercle bacillus. In a recent series of fifty-six pyelitis cases during pregnancy, forty-four were caused by the coli communis, two by the staphylococcus, nine by the streptococcus and one by the gonococcus. The mode of infection by these bacteria, I believe, is still an undecided question. One authority states that the coli communis ascends the urinary tract as a parasite and is generally preceded by pus forming organisms, and that 65 per cent of pyelitis cases are preceded by bladder symptoms. Three other routes of invasion have been suggested: to the kidney, by way of the lymph stream; to the pelvis, by way of the blood stream; or primary infection in the bladder and then up ureters into kidney.

From a series of 184 cases recently finished it

has been found that pyelitis occurs more often in women at or near the age of twenty-four and at the fifth month of pregnancy.

The symptoms of this complication, clinically, show a variable picture.

1. Acute:

Occur after exposure to cold or following a severe attack of gastro-enteritis.

a. Severe pain on micturition, strangury, general malaise.

b. Vomiting soon follows, accompanied with rigors.

c. Severe pain in the right lumbar region and hypogastrium and frequently anterior renal pain which continues toward groin and down inner aspect of right thigh.

d. Temperature high and oscillating.

Abdomen is tender in hypogastrium and in right posterior renal position, with muscular resistance in right groin.

Urine examination shows pus and epithelial cells and motile bacteria.

In a few days pain may occur in left kidney region.

Temperature is variable and may fall by crisis or lysis.

2. Chronic.

a. Onset may be very insidious, preceded by slight albuminuria.

b. Langour, pallor, anorexia, and constipation.

c. Wasting and night sweats, with an occasional pyrexia.

d. There is usually a leucocytosis and the urine will contain pus cells and often granular casts.

Of 187 cases, 55 per cent affected in right kidney, 35 per cent affected in both kidneys, and 10 per cent affected in left kidney.

Diagnosis. Made generally on:

1. Irregular temperature.
2. Pain and renal tenderness.
3. Urine, usually acid, cloudy, pus and albumin.

Treatment. Is best shown by a case under the service of Dr. H. T. Hicks of Boston:

Patient, aged 20 years. Taken with acute pain on right side of her abdomen, during fifth month of second pregnancy. First pregnancy and labor were normal. During present pregnancy has had a great deal of constipation. Three weeks before admission to hospital she had aching beginning in right posterior renal region and rapidly spreading to the front and downward. Pain became very severe and temperature was elevated and malaise was marked. No increased frequency of micturition or sign of cystitis. After two weeks in bed at home and with no decrease in pain, she entered hospital, with temperature of 103 degrees. Rapid and feeble pulse, severe abdominal pain and most tenderness on deep pressure below twelfth rib, behind, and in right illiac fossa and over appendiceal area.

Patient was put on milk diet, and given gr. 10 of urotropine and gr. 3, potassium iodid every four hours. The urine showed a pure culture of B. coli. After four days in bed with above treatment, there was no improvement. Ten c. cm. of colin vaccine were given. The temperature dropped almost immediately and remained normal. The pain was gone in a few hours. Pus remained in the urine for one and a half months, but for 48 hours at a time it would be absent. Three weeks after leaving hospital, she had a return of the pain, but this disappeared with rest in bed. No return of pyrexia.

In respect to the other kidney complication, eclampsia, I wish to lay special emphasis on the importance of high blood pressure.

The real cause of eclampsia is still unknown, but the best theory is that of some causative toxemia, and that it comes from the liver, fetus, placenta, intestines, the general metabolism, disturbed glandular balance, or from bacterial activity.

Symptoms. We have a few symptoms, though, which are very typical of this condition: headache, epigastric pain, spots before the eyes, more or less albuminuria, casts, and high blood pressure. Concerning this last symptom a few facts taken from the report on 5,000 maternity cases in the Boston Lying-In Hospital, are interesting:

1. The normal range of blood pressure, 100-130.
2. Under 20 years of age, had highest percentage of toxemia.
3. Highest blood pressure in elderly pregnant women.
4. Between ages of 20 and 30 years most normal pregnancies.
5. There is a tendency for the blood pressure to increase with the number of pregnancies.
6. The percentage of albuminuria is variable.
7. Elevated blood pressure is often the first sign of toxemia.
8. The degree of elevation points more surely to the likelihood of toxemia than does the degree of albuminuria, and in this series elevated blood

pressure preceded albuminuria twice as often as it followed it.

9. Sixty-four of the entire number had toxemia, six of these had a nephritis before pregnancy and fifty-eight were true pre-eclamptic toxemias.

10. They were more frequent in cold weather than in warm.

Treatment. Consists in the early stages of the general hygiene of pregnancy, careful watching of the urine and when any symptoms arise, put the patient on just enough nitrogenous food to sustain life, cleanse out the intestinal tract, especially the lower part, and stimulate the organs of excretion in order that the poisons in the blood may be thrown off and if the blood pressure should remain persistently high, vivisection should be performed and an equal amount of salt solution injected to dilute the toxins. Hot packs are also used to start the secretions, especially when the patient has any suspicious symptoms of an approaching convulsion. If the toxemia goes on to the convulsion stage then morphin in large amounts must be used, and if unsuccessful, the induction of premature labor is indicated.

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THE TREATMENT OF SPECIFIC DISEASES BY NON-SPECIFIC FOREIGN PROTEIN. A REVIEW.

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The introduction of bacteriology and later of immunology into the field of medicine, brought forth in the use of serums and vaccines a new method in the prevention and treatment of disease. The observations, that vaccination with smallpox virus and typhoid vaccine protected against these diseases alone and that Behring's serum was curative in diphtheria only, emphasized the specific character of these agents, and from this was readily deduced the erroneous conclusion that all such therapy to be effective must be specific. The nicety and plausibility of Erhlich's side-chain theory went far in explaining this phenomenon of immunity and the curative effects of antitoxin. The opsonic index of Wright, an outgrowth of the above, served to strengthen our belief in specificity and it was with timidity that clinicians not thoroughly convinced of this medical dogma, dared venture clinical evidence to the contrary. While I do not wish in any way to disparage the work of these wonderful minds—for we all know it has been the basis of many of our greatest advances—still in view of some of the more recent researches we are forced to discard or at least modify some of this teaching, the result of immunological studies.

That the phenomena of immunology were not entirely nor in their fullest sense specific, seems to have been established by Vaughan, who has shown that animals immunized to B. prodigiosus and B. subtilis have also a certain degree of immunity to typhoid and cholera. He was able to obtain the same degree of transitory immunity to colon bacilli in animals by the use of egg albumin. Clinically, and not at all uncommonly, specific diseases often improve with the implantation of an intercurrent infection. Nor is this observation a new one. Shortly after the advent of diphtheria antitoxin several French workers gave unconscious expression to the non-specific factor within antitoxic serum when applied to diseases coincident with diphtheria. It was noted that diseases coincident with diphtheria not infrequently improved and occasionally were cured following the use of antitoxin. The same serum applied to non-diphtheritic affections such as rheumatic fever brought the same decided improvement. Because of the incompleteness of their work and its incompatibility with the idea of specificity, it gained but little recognition, and it was not until 1892, following the use of Coley's fluid in sarcona, that the profession was awakened to the realization that "there was something in this."

The greatest departure, however, occurred when the doctrine of specificity, as applied to vaccine therapy was shown by Kraus and Mazza, Lüdke (Münch, med. Wchnschr., 1915, 62, 321) and one of our able clinicians, J. L. Miller (Ill. Med. Jour., 1916, 29, 8), to be partly, if not entirely, untenable. Stimulated by the work of Frankel, Penna, Ichikawa, Gay and others in the manner of treating typhoid fever with vaccine, these workers determined to try the effects of non-specific substances such as B. coli, proteose and albumose intravenously. They noted the same relative number of improvements, remissions and crises, in about the same proportion of cases treated, as did those writers work-

ing with typhoid vaccine. This seemed to prove definitely that the non-specific factor played the important rôle and that the specific factor, especially with reference to therapy, must be of relatively little importance.

What this non-specific factor is, is as yet undetermined, but the probabilities of its being the foreign protein, led to the further thought that the other diseases might respond equally favorably to this method of treatment. The work of Miller and myself (J. A. M. A., June 3, 1916, and Dec. 30, 1916), gives proof of the correctness of this view. The quick response of the arthritides to intravenous foreign protein such as typhoid vaccine, proteose, chicken serum, pollen vaccine, etc., and the striking improvement and what might be considered cures with the same agents in cases of typhoid fever, tonsilitis, pharyngitis, iritis and pneumonia seems to be especially significant. Wells and Mathers (unpublished) working with erysipelas and pneumonia, and Culver and Welch (unpublished), working with gonorrhea in its various manifestations, likewise have observed remarkable improvement in these diseases by the use of foreign protein intravenously, the kind of protein making little difference. Müller and Weis (Wien. klin, Wchnschr., 1916, 29, 249) in their treatment of gonorrhea and its complications have reported encouraging results from the intragluteal injection of sterile milk while Saxl, Bruck and Kiralihyda (Münch. med. Wchnschr., 1916, 63, 511), using the same agent in typhoid fever, feel that it bids fair to become a routine treatment in this disease.

Recently Friedlander (Wien. klin. Wchnschr., 1916, 29, No. 42), employing this treatment in trachoma, manifests not a little enthusiasm over his success and cites several cases of patients, in whom, after varying periods of only partially successful treatment under the older methods, the eye symptoms and much of the pathology cleared up within twelve to twenty-four hours after a single intragluteal injection of sterile milk. Engman and McGarry (J. A. M. A., Dec. 9, 1916,) used typhoid vaccine intravenously in lupus vulgaris and psoriasis with very gratifying results, comparing favorably with that obtained by Miller and myself in a refractory case of acne vulgaris of three years' duration. Smith (J. A. M. A., June 3, 1916), impressed with the improvement in gonorrheal complications incident to anaphylactic shock, induced this phenomenon to a therapeutic degree with normal horse serum. His results in this disease, so treated, are equally interesting.

From this series of observations, one feels justified in saying, that, while we dare not question the specificity of vaccine in preventive medicine, we are fast drifting from this idea as it relates to curative medicine. We have come to that point where we must seek an explanation other than the anti-body theory, or at least modify it or couple it with some newer teachings. Thus far no new explanation has been offered that will explain all the phenomena at the basis of this upheavel of scientific lore. However, the admirable work of Jobling and Peterson seems to be a step in advance. These observers who dared break ties with the advocates of specificity have offered us experimental evidence that is at least plausible and tangible. They believe non-specific ferments, especially the proteolytic ferments, proteose and ereptase, to account for the detoxication in such infectious diseases as typhoid and pneumonia. They hold that at some point in the disease process these ferments, due to an inhibition of the anti-ferments, are mobilized and gain ascendency, thereby splitting the toxic and easily eliminated substances. This mobilization of ferments, they are inclined to think, is a physical phenomenon, brought about in the case of introduction of a foreign substance such as proteose or kaolin, by a lessened colloidal state of dispersion. (Studies on Ferment Action: Jour. Exper. Med., 1912 to 1916.)

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MODERN ASPECT OF THE CANCER PROBLEM.*

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It seems that the issue of cancer therapy has entered into a new phase. The endeavor to infinitely devise new methods of dealing with malignancy has given way to a decided attempt at developing and exploiting methods that on trial were found to furnish results. At the same

*Read before the meeting of the Chicago Medical Society, Oct. 18, 1916.

time the profession emancipated itself from the idea that at this time there is available such a thing as a specific or a panacea which may, with certainty, cause the disappearance of a malignant growth. Only by drawing intelligently on all modern scientific resources will one be able to achieve satisfactory results. These three methods above are the employment of the knife, electrocoagulation and chemotherapy. Surgery by cutting still has to be considered as the mainstay in dealing with malignant tumors, and if employed in the right way at the right time, will furnish a certain number of permanent cures, this percentage being dependent on the peculiarities of the cases concerned. Quite a few observers claim that the number of permanent results will increase if each operation is followed by intense radiotherapy.

In case the use of the knife should be excluded for technical reasons electrocoagulation may be employed for the total or partial removal of malignant tumors. Electrocoagulation consists in accomplishing immediate necrosis of tissue by penetrating the structures with high frequency currents of high amperage and low tension.

This surgical diathermy is preferable to the employment of the actual cautery as the Paquelin or the galvanocautery or the soldering iron for the following reasons: The technique of its application is decidedly more reliable, the dosage can be measured with great exactness, the hemostasis is perfect and the danger originating in the absorption of poisons produced by burns is eliminated. Extensive cauterization is known to be occasionally followed by an overwhelming inundation of the body by such toxic products or by the development of deep ulcers of the stomach or the duodenum. This surgical diathermy may either accomplish the total destruction of the tumor concerned without any danger of adjacent inoculation or may be used for the removal of the bulk of the growth only, thus making the deeper layers accessible to penetration with therapeutic rays.

As to the third method, the chemotherapy divides itself in two categories, radiotherapy and the injection of chemotactic substances either directly into the tumor or in the system in general.

In radiotherapy there are used rays produced by x-ray tubes or rays emanating from radioactive substances. The materials mostly in use are radium salts and mesothorium, the latter apparently preferred by most of the successful European authorities.

The modern application of Roentgen rays to malignant tumors is based on the principles of using hard tubes, of interpolating filters between the tubes, and the object to be rayed, and by administering at each sitting large doses, those being strictly controlled by exact dosimetry.

Radioactive substances are furnishing possibilities to radiotherapy, when Roentgen rays are not usable, either because it seems desirable to apply the therapeutic rays continually for a length of time not attainable by the use of x-ray tubes or if the topographic location of the tumor would prevent its penetration by x-rays. In certain instances a tumor may yield to radium or mesothorium rays after having proven itself refractory towards Roentgen rays.

It has to be admitted that radiotherapy has furnished "Clinical Cures" only in a minority of the cases submitted to it, but on the other hand it has to be considered that quite a few of these successful cases were inoperable; it may also be stated that if radiotherapy furnishes such results at all, they were obtained without the risk of an operation and without concomitant mutilation. Radiotherapy, even if failing in procuring cures, may still be of value; there are cases on record that originally having been inoperable, became operable after raying and finally radiotherapy is a powerful agent in managing absolutely hopeless cases by relieving the suffering of the patients and by securing euthanasia.

Chemotherapy carried out by injecting enzymes produced by organs, bacterines, colloidal metals, emulsion of glands, autolysates has furnished either negative results or favorable ones only sporadically.

We tried to approach this problem from a different angle. Modern biology teaches us that certain organs are producing materials that will influence only certain categories of cells as to specific action, proliferation or eventually absorption. In the same way it ought to be possible to discover or to develop materials that will exclusively influence only those cells, the metabolism of which it is desirable to change or which one intends to destroy completely. (Abderhalden.) The most effective way to destroy chemically a cell is to make its plasma soluble and absorbable to peptonize it. Bacillus proteus be-

ing an efficient peptonizer naturally came under consideration. During the preparatory studies and experiments Dr. J. Eisenstaedt called the author's attention to the interesting work of Dr. Kendall of the Northwestern Medical College, concerning bacterial enzymes.

We, therefore, started to use proteus enzyme prepared after the method developed by Dr. Kendall. These applications furnished very interesting results, to the leading points of which I would like to call attention. Larger quantities injected into a tumor produced extensive necrosis, while the injection of very small quantities produced in the successful cases a shrinkage and eventual disappearance of the tumor without any noticeable breaking down. In every instance the injections into the tumor were followed in a short time by pronounced general reaction which was characterized by considerable rise in temperature, chills and nausea. A very interesting point is that the injection of the enzyme in any other part of the body, outside of the tumors, was not followed by any general reaction. The injection of the enzyme into a gumma and into a hard puerperal exudate furnished also a negative result as to the general reaction.

In those cases in which we feel entitled to claim a clinical cure, the result became apparent after a very few treatments. All the cases not improving promptly seem to be failures as to cure, although in most of them a certain improvement was noticed. In two of the successful cases only a clinical diagnosis of malignancy was made.

Another theoretical consideration led to the practical application of secondary products of the enzyme therapy. If the assertions of the modern biologists are correct, then every time that products of destruction of cell proteids are thrown into the circulation, the host will develop certain substances to fight and neutralize the effects of these waste products, these substances being denominated as defensive and protective ferments. It, therefore, seems plausible to attempt to collect such defensive and protective ferments out of a patient being under the reaction of the enzyme injected into his tumor and to embody them into the system of another patient carrying a tumor of a character similar to the one borne by the first individual. If this theory be correct than the second patient must be benefited either in this way, that his tumor is locally and directly affected or that the symptoms characterizing malignant cachexia are relieved, or that both those actions may simultaneously become apparent. Our observations seem to bear out these contentions. While only in one case, an epithelioma of the gums, a decided local effect was to be observed under the influence of this secondary serum, in all cases of general carcinosis a decided general improvement could be noticed, characterized by a decided rise in hemoglobin, gain in weight and pronounced betterment in the general feeling of the patient. It also seems that some tumors originally refractory to the radiotherapy became sensitized by direct and indirect enzyme therapy so that they began to shrink under the following application of the rays.

In reviewing our experiences we arrived at the conclusion that our first idea of making a tumor disappear by directly peptonizing it, is erroneous and that all the favorable results obtained are rather due to the retroactive influence of the ferments mobilized by the injection of the enzyme into the tumor.

To summarize, the fight against malignancy has to be conducted by the co-operation of the surgeon, the physicist and the biological chemist. At present radiotherapy and chemotherapy are apt to produce good results in a minority of cases. Diathermy, radiotherapy and chemotherapy enable us to make life bearable for hopeless cases. Our efforts must be concentrated on the issue of why the majority of cases are refractory toward these methods. If such researches will succeed in uncovering the nature of these obstacles and in finding means to overcome them, then the hope will be justified that Abderhalden's prophecy will come true, "The ideal of the future is the specific cell therapy."

ADIPOSIS DOLOROSA (Dercum's Disease).*

WITH REPORT OF CASE.

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In 1888, Dercum[1] described a disorder characterized by irregular, symmetrical deposits of fatty masses in various portions of the body preceded or attended with pain. Writing in May, 1909, G. E. Price[2] found fifty reported cases of

*Read before the Illinois State Hospital Association at Chicago State Hospital, Jan. 25-26, 1917.

this disease. Since then many cases have been reported.

While this disease is most common in middle life, cases have been reported as early as the eleventh year and as late as the seventy-eighth year.

A few cases have been reported in men, but the great majority of cases have been found in women. That the causative factor of this disease is obscure is shown by the following list of etiological factors given in reported cases: Alcoholism, syphilis, tuberculosis, traumatism, emotional excitement, toxemia, menopause, abortion, pregnancy and heredity. Cheevers reported cases in a father and a sister. Hammond reported two cases in sisters, while two cases in mother and daughter have been reported by Carroll[5]. W. Kloninger[12] reported a case following the removal of an ovarian tumor, and the removal of an ovarian tumor and ovariotomy are given as etiological factors in a case reported by Sabatucci and Zanelli[11].

Frequently developing on a neuropathic basis, many of these patients terminate their existence in insane hospitals.

While adiposis dolorosis is usually looked upon as a separate affection it is closely allied to several other fatty conditions.

The following fatty affections apart from simple obesity have been enumerated by McCarthy[6]: 1. Adiposis tuberosa[8] simplex Anders found localized fat tumors, sometimes painful to pressure, scattered through abdominal fat. These differ, however, from nodules seen in adiposis dolorosis in their formation and in their disappearance under dietetic and hygienic measures. 2. Adiposis cerebralis[9], described by Frohlich as dystrophia adiposa genitalis has a close analogy to adiposis dolorosa. It consists of excessive general adiposis, developing during the course of brain tumor involving the pituitary body and in one case the pineal gland. Defective development of genital organs is frequently associated. 3. Symmetrical adeno lipomatosis[9], a fatty condition described by MacCormac, characterized by large localized fat masses found in neck, axilla, trunk, asthenia, mental irritability, apathy, hypochondria, enlarged spleen, increased pulse and decrease of small mono-nuclear cells in blood.

4. Multiple lipomatosis. Multiple isolated lipomatous tumors have occurred symmetrically placed in different parts of the body. On account of their arrangement and their association with tabes, general paralysis of the insane, sciatica, etc., it has been assumed the nervous system was the cause of the affection.

Seven autopsies performed on cases of adiposis dolorosa have shown atrophic lesions with compensatory hypertrophy of the thyroid gland. Tumor of the pituitary in three cases, interstitial neuritis in the fat tissue in three cases, and slight sclerosis of the posterior column of the spinal cord in one case have been found. Dercum and McCarthy[6] describe a case with autopsy showing a tumor of pituitary body with hypoplasia of genital organs, extensive lymphoid infiltration of the fat and hemolymph glands. This case seems to form a connecting link between adiposis dolorosa, adiposis cerebralis and symmetrical adenolipomatosis. McCarthy thinks that the cause of the pain found in the disease is a low grade interstitial neuritis. The most pronounced symptom of this condition is a diffuse deposit of fat, containing sensitive nodules the seat of spontaneous pain.

Pain is a prominent symptom present at sometime or other and may precede the development of the fatty nodules which are characteristic of this condition.

These nodules are the end stage of a process which begins by the formation of painful, reddened edematous areas from one to four inches in diameter. Nodules in the fat remain as circumscribed masses sensitive to pressure and associated with diffuse pain described as neuralgic, rheumatic, etc.

Associated symptoms consist of asthenia, a querulous irritability, sensory changes and disturbances of the vasomotor system such as variations in sweat secretion, cyanosis of extremities, dermographia, trophic ulcers and subcutaneous ecchymosis. Prognosis as to life is good, but as to cure is bad. Thyroid gland in increasing doses has benefited some cases, but so far has produced no change in the case I am about to report.

Mrs. E. S. was admitted to the Peoria State Hospital December 20, 1916. The only history of her physical and mental trouble, I have been able to obtain, is given by the patient and, because she is mentally defective, is far from satisfactory. Her father and mother died when she was very young and she knows little about them. She has one brother and one sister living, but has not seen them for years. Letters sent to their address as given by her

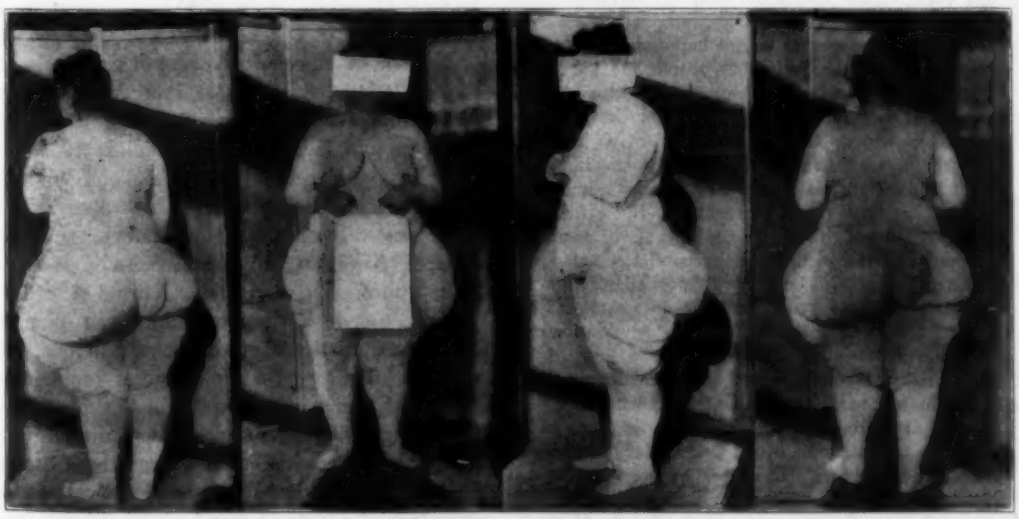
have been returned undelivered. There is nothing special to be noted about her childhood with the exception that she developed a divergent squint of the left eye. She attended school off and on for a "short time" and was in the first grade at nine years of age when she left and did housework at home and for neighbors. She says she was happy, sociable, in good health, doing housework, also working as a cook in restaurants until about twelve or thirteen years ago. At this time, pain, sharp and paroxysmal, developed in her right thigh and gluteal region. After a time—how long she does not know, but thinks it was a few months—this region began to show fatty enlargement. Sometime afterwards—she does not know how long—pain began on the opposite side and was followed by fatty enlargement of upper part of the leg, the thigh and the gluteal region. Her weight before this trouble began was 140 pounds. At present, she weighs 258 pounds.

The patient has been treated by many physicians, but has obtained no permanent relief of the paroxsymal pain which she suffers at irregular intervals. The pain seemed to involve the fat and muscles of the affected areas and frequently interrupts her sleep.

Six years ago, a surgeon removed a large mass of fat from the inner surface of the left leg about the knee. In 1912, she married a laborer and had one miscarriage. Says her husband was good enough to her, but she had to make a living for him. He left her six months after her marriage and she has not heard from him since. She thinks "someone took him away." Three years ago a mass similar to the one removed six years ago was removed from the inner surface of the left leg about the knee by another surgeon. One year ago, she had a large mass weighing twelve pounds removed from the outer side of the right thigh and gluteal regions.

When not in hospitals following these operations, she continued to work as cook in different restaurants. A short time before her admission, the patient went to Iowa to keep house for a single farmer, an early acquaintance of hers. In a short time, she began to think that her neighbors were talking about her and were accusing her of having immoral relations with her employer. She left this place, was returned by Iowa authorities to Piatt county, Illinois, her home, and from there committed to the Peoria State Hospital.

The physical examination shows her to be a woman about forty years of age 63½ inches tall, weighing 258 pounds. There are large, irregular masses of fat distributed over the thighs and gluteal regions, as shown by photographs. (Fig. 1-2-3-4.) On the inner aspect of both legs just below knees, on the outer aspect of right thigh, and in the right gluteal region are large post operative scars. Spontaneously, she says, "I have pains all over by spells of my flesh and in my bones." The respiratory, cardiac, digestive, urinary and genital systems are negative. The patient menstruates regularly. The urine, blood and Wassermann examinations are all negative. The neurological examination shows no gross defect of spinal senses. The fat masses are tender to deep pressure and are the seat of a dull aching and at times sharp pain. There are no other subjective cutaneous complaints. Tactile, pain, temperature and stereognostic sensibilities, normal. There is no abnormal nerve or muscle tenderness. Sense of position and passive movement, also coordination are normal. The pupils are equal in size, regular in outline and react promptly to light, consensual and accommodation reflexes. There exists a divergent squint of left eye; otherwise, extrinsic muscles of the eye are normal. The upper lids are normal, as are also the masticatory, facial, phonation and articulatory groups of muscles. The muscular develop-



Figs. 1-4. Patient with Adiposis Dolorosa.

ment and tonus are good. The gait is slow, waddling and awkward, due to an increase of 118 pounds above her former weight and the direct interference with the act of walking by the fatty tissue. There are no abnormal muscular contractions. The abdominal reflex is absent. Other superficial reflexes are all normal. The knee jerks are equally and moderately diminished, organic reflexes are intact and convulsions are denied.

Since admission, the patient has been quiet and co-operating well, except on one occasion when in reaction to hallucinations of hearing, she became noisy and was resistive for a short time. There are no peculiarities of dress and, with the exception of the one noisy spell, there has been no marked conduct disorder. The patient presents the facial appearance of one suffering with uneasy, anxious depression. She distrusts those about her, including the physician and sits apart from the other patients having little in common with them. She complies with requests, but does so slowly, with distrust, and prefers not to be bothered by those about her. Her sleep is poor, accompanied by many vivid, depressing dreams and is frequently interrupted by pain in thighs, hips and gluteal regions. Her mood, one of anxious depression accompanied by irritability, has not changed since under observation. Since a little girl, she has heard her father's and mother's voices in dreams. Recently, since she went to Iowa, she heard during the day voices of unknown people accusing her and stated: "I have nothing but enemies." She knows there is punishment in store for her and says: "There is someone that wants me out of the way." "I had friends, but they turned on me." "I have been in pain for years and there have been years that I have never smiled or laughed." "You cannot help being suspicious when they talk right to your face." "They talk around my bed at night." Recently, she has come to the conclusion that her physical illness is caused by a clairvoyant medium whom she met at a seance many years before her increase in weight began. While she feels that people she never met know much about her and look at her in a significant way as if her reputation preceded her coming, she is unable to explain it. The patient is oriented, but her memory for past events, particularly for dates and details, is poor. She does not know the year of her birth nor her exact age. She remembers the year, but not the month and day of the month of her marriage. Her memory for recent dates is also poor concerning details. Her general knowledge is limited, her calculation very poor, and she does not read nor write. She does not think there is anything wrong with her mind—then adds: "But you know I am awful sick. My head hurts and I cannot sit still."

Concluding, permit me to state that while her poor memory, retention and general knowledge could be caused by organic brain disease, the history as obtained from patient, shows that there has been no decided change in these faculties, nor has there been any change in her efficiency other than what could be accounted for by her physical disability. I think that most of her mental symptoms can be accounted for on the basis of an emotional oscillation in a person of limited intelligence and that her psychosis could be classified as a period of depression in an intellectually deficient individual.

I am indebted to Dr. Clara B. Hayes of the Peoria State Hospital for assistance in the examination of this patient.

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AMEBIC DYSENTERY.*

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Definition.—Amebic dysentery, also known as amebic colitis, amebic enteritis, and amebiasis, is an infectious disease of the intestine. It may be either acute or chronic, and it is characterized by intermittent attacks of diarrhea and constipation, abdominal pain, tenesmus, the presence of pathogenic amebæ and usually blood and mucus in the feces, and occasionally abscesses in the liver and other parts of the body. The amebæ enter the body with food and water causing colitis, rectitis and enteritis.

Distribution.—Amebiasis was formerly regarded as only a tropical disease, but more recent investigation shows that it is a surprisingly widespread infection, although it is more severe and more frequent in the tropical and subtropical climates. It seems to be purely endemic in form.

In 1875 Lösch reported a case of amebic dysentery at Petrograd, and later Juergens made note of one in Berlin, and Caussade and Joltrain, one in Paris. In fact, Kartulis stated in 1906 that Scandinavia, Great Britain, Spain and Portugal were the only European countries from which no report of amebic dysentery had come. Since then, England has had several sporadic cases.

In a recent number of the Journal A. M. A., Dr. Sanford, of Rochester, Minn., gives some interesting statistics about amebiasis in our own country. He says that it is rather common in Maryland, which, of course, is in the zone where it is supposed to occur most frequently. However, sporadic cases occur in the northern States. In 1902 Dock reported a case of typical amebic dysentery in a patient who had never been away

*Read before Englewood Branch, Chicago Medical Society, Jan 2, 1917.

from Michigan; at the same time Walsh reported 12 cases which had never been outside of New York, and Tuttle called attention to several who had never been more than fifty miles south of New York city, and fifteen who had always lived north of 37 degrees of latitude.

For several years at the Mayo clinics, Drs. Sistrunk, Giffin and Sanford examined the stools of patients for amebæ. Out of 5,000 examinations there were 819 persons from the northern states infected; 284 of these having entamba coli, the harmless form, and 535 having entameba histolytica, the pathogenic form. The majority of these people became infected in the state in which they lived, and all in the northern portions of the temperate zone.

The question of carriers then comes up. Since the disease is more prevalent towards the end of the dry and beginning of the wet season, in the tropics, and since many of the above cases were from rural districts where people from infected parts rarely go, but where small ponds, shallow wells, streams and marshes abound, the infection seems to bear a close relation to contaminated water supply. Another source of infection is the people who are immune carriers, without ever having had the disease. Fresh fruits and vegetables grown on polluted soil could also easily pass on the amebæ in cyst form. The latest suspect is the common rat, that notorious germ bearer, who suffers from infection of the disease. All of these sources are doubtful and until further and more definite investigations have been made, the best prophylactic measures to be adopted in suspected areas are the boiling of all drinking water, and the avoidance of fresh fruits and vegetables grown in the ground.

History.—While dysentery was mentioned as a specific disease in the earliest papyrus records, the amebic variety was not differentiated until 1859, when Lambl called attention to the presence of rhizopoda in the intestinal mucus of a child who had died from enteritis. In 1875, Lösch found amebæ in the dejecta during life, and in the intestinal lesions at autopsy, of a case of chronic dysentery. He described the parasite and was able to infect dogs with the patient's feces, causing ulceration of the intestine. This work was confirmed by Koch, Gaffky, Kartulis, Osler, Councilman, Lafleur and many others. Celli and Fiocca were the first to study the amebæ systematically and to cultivate them on artificial media. Councilman and Lafleur said there were two varieties of amebæ:

(*a*) Ameba coli—a harmless commensal.

(*b*) Ameba dysenteriæ—a pathogenic organism, the cause of dysentery.

This was confirmed by Stiles, but Schaudinn reviewed the subject and grouped all amebæ as follows:

I. Ameba coli rhizopodia, with 3 species:

(1) Entameba coli;

(2) Entameba histolytica;

(3) Entameba tetragena.

ETIOLOGY.

Entameba Coli (Lösch, 1875).—E. coli seems to be a harmless commensal in the large intestine of man and many domestic and wild animals. It may be abundant when the intestinal reaction is either neutral or alkaline. Dr. Craig, captain of the Medical Corps of the United States Army, tells of some of his examinations. Stool examinations were made of 200 men in the Hospital Corps, all of whom were robust and healthy and had never had dysentery. The result was that 65 per cent of them showed the presence of E. coli in varying numbers. In 1906, Captain Veder, of the Army Corps, examined the feces of 50 American soldiers and 50 Filipino Scouts. Fifty per cent of the Americans and 75 per cent of the Filipinos had E. coli. In San Francisco and Manila, the examination of 307 healthy Americans showed E. coli in the feces of 176, with no signs of dysentery even after three years of close observation.

Dr. MacNeal, of the New York Post-graduate School, says that although E. coli appears harmless, there is a possibility that it may contribute to the aggravation of pathological conditions in the digestive tract. However, its common occurrence in healthy men speaks against its possessing any specific or powerful pathogenic property.

McFarland, of Philadelphia, describes E. coli as follows:

"The organism usually measures between 10 and 20 micron in diameter, when free, and from 15 to 50 micron when encysted. It is spheroidal when free, and it is difficult to differentiate the ecto- and endoplasms. The ameboid movements are sluggish, with short, broad and blunt pseudopodia, on which the clear ectoplasm becomes visible when they are protruded. The organism has

a grayish color, finely granular cytoplasm, and usually only one vacuole. The nucleus is fairly well defined, spherical, and contains several nucleoli, in addition to chromatin. When the organism is stained with polychrome methylene-blue, the ectoplasm stains blue, the endoplasm violet and the nucleus red.

E. coli reproduces by simple fission and by schizogeny. In its sporulation, the organism first encysts, then the neucleus divides into eight segments (rarely ten or sixteen), and eventually the cyst breaks up into eight new organisms. The fully developed cyst with eight nuclei is about 15 micron in diameter and is characteristic of this species.

Entameba Histolytica (Schaudinn, 1903)—McFarland says of this organism:

It is the organism seen and identified by Lösch, Koch, Kartulis, Councilman and Lafleur and accepted as the cause of amebic dysentery. It is usually present only in the intestines of those with dysentery and there are usually great numbers so that its discovery in the evacuations is easy.

Of its morphology he says:

It is larger than E. coli, varying in diameter up to 50 micron. It is spheroidal when at rest but very irregular when in action. The ameboid movements are active and the pseudopodia are larger and more numerous than in other species. The protoplasm has a greenish or yellowish color and there is usually a distinct difference between the ecto- and endoplasms, the former being hyaline, and the latter granular. The nucleus is small and rather indistinct and there are numerous vacuoles. A freshly evacuated specimen usually contains many red blood cells upon which the organism seems to feed. When stained with polychrome methylene-blue, the ectoplasm stains more deeply than the endoplasm. The nucleus contains relatively little chromatin.

E. histolytica reproduces by binary fission, after karyokinesis—indirect cell division which begins in the chromatin of the nucleus—and by encystment and sporulation. The sporulation is quite different than that of E. coli and only takes place when conditions are unfavorable to continued division. It is accomplished by a peculiar nuclear budding in which chromatin granules, or chromidia, are pushed out from the nucleus toward the ectoplasm, where they develop into new nuclei, about which the cytoplasm collects until a distinct bud is formed and cast off as a small but definite new organism—a spore or bud. These, when separated, are round or oval and measure 3 to 6 micron in diameter and are surrounded by a yellowish envelope which resists drying and the penetration of stains and chemicals.

Entameba Tetragena (Viereck, 1906)—MacNeal describes E. tetragena as follows:

It is 8 to 60 micron in diameter, and the ectoplasm is distinctly differentiated from the endoplasm, even when the organism is motionless. The lobose pseudopodia are composed only of the stiff, highly refractive ectoplasm. The endoplasm contains food material, bacteria, cell fragments, and red blood cells. The nucleus is distinctly visible in the living ameba, is spherical in shape, and is surrounded by a thick, doubly contoured nuclear membrane. In this species, reproduction is chiefly by fission, but cysts are formed when the patient begins to convalesce. The mature cyst has four nuclei and frequently large masses of chromidial substance. It is regarded as a causal agent in amebic dysentery, for either active or vegetative cells, or disintegrating forms are found in the stools of patients with dysentery.

In discussing the relationship of E. histolytica and E. tetragena, McFarland says:

In recent investigation (1910 to 1915) by Craig on this subject, he concludes that Schaudinn was in error about the life cycle of E. histolytica and what he supposed to be its sole method of reproduction is only that means which preponderates during the period of its greatest activity. That when the acme of the dysentery is passed and repair sets in, then the mode of reproduction characteristic of E. tetragena is seen. It would seem then that the two forms are the same, and according to the best information available at present, there is only one pathogenic ameba—E. histolytica.

The same conclusion was reached by Darling. The non-pathogenicity of E. coli is now less certain than before. In a recent paper by Williams and Calkins they close with the statement that it is unwise for anyone at present to be too positive in regard to the distinctive features of any of the entameba group, for there may be in man three or more, or two (as Hartmann, Whitman, Walker and Craig now think), or possibly only one species of ameba manifesting different forms under different conditions.

McFarland told some interesting facts about how pure cultures of amebæ are obtained for experimentation. First the low power is turned on an ordinary amebic culture, which also contains bacteria and more or less foreign material. A single desirable ameba is chosen and the high power turned on it, then the lens is lowered until it touches the organism. When the lens is raised again, the ameba will probably adhere to it and can easily be transplanted on a dish of sterile agar with a few red blood cells for food. The low power will show whether the attempt has been successful or not, and a pure culture will probably grow.

Pathology.—It seems that E. histolytica must produce some metabolic product that exerts an

enzymic action upon the human tissues, thus accounting for the destructive nature of the lesions. But this has not yet been proved.

The amebic cysts, containing spores, enter the body with food and water and pass on through the stomach and small intestine into the large bowel, where the lesions are found chiefly in the rectum and just below the ileocecal valve in mild cases, or along the entire length in severe cases. One characteristic of amebic dysentery is abscess of the liver, one of its sequelæ, which occurs in nearly 25 per cent of the cases, but almost never in bacillary dysentery.

The distinct and somewhat rigid ectoplasm of entameba histolytica is supposed to make it easy for the organisms, which you remember are actively motile, to penetrate between the epithelial cells of the intestinal mucosa to the lymph spaces of the submucosa below. Here the amebæ multiply rapidly and by the enzymic action of their metabolic products, cause necrosis of the supra-adjacent tissues with resulting exfoliation and the production of round, oval or ragged ulcers with markedly infiltrated and undermined edges. As the amebæ increase and fill up the lymphatics and as bacteria add their effects to those occasioned by the amebæ, the ulcerations increase in extent and depth until the mucosa and submucosa may be almost entirely destroyed, leaving the entire length of the large intestine denuded except for occasional islands of much congested, inflamed and partly necrotic mucous membrane. The diseased intestinal wall is the seat of much congestion and is much thickened. The most characteristic lesions of the early stages of amebic dysentery are the projection of nodules, having a blackish point on the summit, from the folds of the mucous membrane into the intestinal lumen. When incised, these nodules are found to contain a yellowish or greenish yellow viscid fluid of a gelatinous consistency, which is composed, when seen under the microscope, of degenerated cellular material, mucus, and living amebæ. In the next stage the black points on the elevations are cast off and the necrosis of the mucus membrane covering forms a small ulcer, whose base becomes inflamed and its edges ragged. These ulcers deepen until they expose or even perforate the muscular and peritoneal coats, causing, of course, peritonitis and abscesses, according to the position of the perforation. The invasion of the mucous membrane laterally leads to the formation of sinuses beneath it, connecting neighboring ulcers. In very severe cases, large irregular ulcers form channels in the mucosa, over the sinuses, and the whole surface of the intestine becomes covered with partially detached shreds of necrotic membrane. This "buffalo skin" and the sinuses are peculiar to the amebic form of dysentery only. A typical ulcer, as Craig describes it, has edges raised from the surface of the mucosa and is much undermined, giving a shaggy appearance because of the necrotic tissue. The small ones are usually round or oval and the large ones are irregular. The younger ulcers have blood, pus and necrotic material on the floors, but the older ones have smooth floors.

Sequalæ.—Amebæ not only appear in great numbers in the ulcers and the lymphatics but also enter the capillaries, through which they are carried to the larger vessels and eventually to the liver, where they continue to increase and give rise to hepatic abscess. The first expression of their injury to the liver parenchyma is shown by focal necroses. In each of these, the organisms multiply and the lesion extends until neighboring necroses are united and eventuate in great collections of colliquated necrotic material which may involve the whole thickness of the organ. There is usually only one large abscess but there may be several small ones or the liver may be riddled by hundreds of minute abscesses. Few amebæ are found in the pinkish necrotic substance contained in the abscesses but great numbers are found in the semi-necrotic walls. Sometimes the liver becomes adherent to the diaphragm and if this is perforated adhesion of the lung may result, the pinkish material being expectorated.

When the ulcers heal, by the formation of new connective tissue, a distinct scar is formed which is often black in color, due to the action of the sulfuretted hydrogen of the bowel on the iron of the blood. When this cicatrization takes place, the lumen of the bowel may be constricted, causing stenosis and obstinate constipation. Peritonitic adhesions are also very common, binding the large bowel to the viscera or the walls of the abdomen and pelvis. Sometimes when an infection is unusually severe, the bowel becomes gangrenous. Hemorrhage is very common in dysentery.

Morbid Anatomy.—Usually the body of a person dying of amebic dysentery is emaciated and the abdomen is sunken. Rigor mortis begins and passes off early and decomposition sets in quickly. When the abdomen is opened, the tissues are dry, and have a peculiar odor. The omentum may be normal or congested and may or may not be adherent. The large intestine is generally contracted and thickened, but it may be gangrenous or perforated with purulent peritonitis. The mesocolon may be congested and edematous or thin and fibrous. Adhesions of various organs is common with inflammation of the mucosa. The mesocolic glands are usually enlarged and hyperemic. The ulcerations formerly described are always to be found. The small intestine may show small, bright red nodules and the Peyer's patches may be enlarged, the appendix, the pancreas, and the spleen are usually normal, but they may be ulcerated, and the kidneys often show parenchymatous inflammation. The liver and the heart may become fatty, while the lungs may undergo brown atrophy.

SYMPTOMATOLOGY.

1. *Acute Type.*—The onset is usually abrupt but occasionally it may be preceded for a few days by a slight diarrhea, alternating with constipation. Pain is felt in the lower abdomen and may be very severe, accompanied by tenesmus. The motions rarely exceed 30 a day and they contain blood, mucus, and occasionally greenish material which proves to be leucocytes, mucus, Charcot-Leyden crystals, amebæ, bacteria, and shreds of tissue when seen under the microscope. The tongue is moist and often coated with a white fur, and usually there is anorexia, accompanied by nausea, vomiting and general indigestion. Other symptoms are sunken abdomen, tenderness on pressure of large bowel, fewer red blood cells in blood, diminution of the urine, with casts and albumin, and fever. When the temperature falls to normal and pain and tenderness abate, these may be favorable signs or may be a prelude to gangrenous complication or hemorrhage. If the patient dies, it is usually within a week or ten days from the onset of the disease, and it is generally caused by exhaustion, more rarely perforation or hemorrhage.

2. *Chronic Type.*—Chronic dysentery may follow an acute attack or may start insidiously. The symptoms are those of diarrhea, associated at times with abdominal pain and the passage of feculent motions mixed with mucus and blood, alternated with periods of constipation. If the disease becomes aggravated in any way there may be 12 to 14 motions a day, most frequently at night, with small grayish masses, containing amebæ, in the stools. Gangrene may set in at any time, or the disease may persist for many years, causing the patient to slowly emaciate.

3. *Latent Types.*—In latent types there are no dysenteric symptoms but amebæ are present in the feces and ulcers are found in the postmortems. The latent condition is important because it can easily lead to an acute attack or a liver abscess, and these people are carriers.

4. *Mixed Types.*—Mixed infections of amebic and bacillary dysenteries are identified by numerous motions, considerable fever, nausea, vomiting and great constitutional disturbance. The motions are apt to be offensive and to contain sloughs, indicating gangrenous complication. Exhaustion may come early and the patient may die comatose, but rarely improvement sets in and chronic dysentery is established.

TREATMENT.

Castellani and Chalmers recommend the following treatment:

The patient should be placed at rest in bed, first, then should be given either a small enema of 40 minims of laudanum in 1 ounce of mucilage of starch or an injection of morphiæ (¼ grain), or codiene (¼ grain) suppository to relieve the severe griping and straining. Next the bowels should be swept clean by a dose of castor oil (3 iv. to 3 vi.), with or without a few minims of liquor opii sedativus, or a few doses of saline may be given during the first 24 hours. After the castor oil has acted, or simultaneously, the emetin treatment should be begun. This consists of a hypodermic injection, three times a day for 2 or 3 days, of ⅓ to ½ grains of emetin hydrochloride dissolved in sterile normal salt solution. Emetin hydrobromide may also be used in the same dosage, but it is not quite so soluble. These drugs may be had in sterile tubes ready for injection. If emetin cannot be had, then ipecac should be given in 5 grain doses every 3 or 6 hours, or in larger doses (gr. x. to xx.) twice daily in the form of membroids or as

pills coated with salol varnish or keratin. These varnishes do not dissolve readily in peptic juice while they do so in pancreatic juice, if the coating is not too thick. Practically, however, membroids are better in man. Martindale's method of stearin-coated pills is very good, for the nausea is often avoided without diminishing the efficiency of the ipecacuanha. Using any of the above methods nausea is usually avoided and the precautions generally observed need not be used. When the acute symptoms are gone, intestinal irrigation is useful and should be administered every other day or once or twice daily. A solution of tannic acid, 3 to 5 in 1,000, or a solution of bihydrochloride of quinine varying in strength from 1 to 5,000 to 1 in 750, is very good. Half to three pints should be slowly injected by gravity from a glass douche by a long, soft rectal tube. This injection may be preceded by a cocaine or morphine (¼ grain) suppository introduced half an hour previously. In gangrenous dysentery, the only chance to save the patient's life is to perform an operation of appendicostomy and to irrigate the lower bowel with quinine solution 1 in 1,000 or collargerol 1 to 500. Ipecac or emetin should be continued in small doses to prevent either a relapse or a hepatic abscess, if possible.

7303 Evans Ave.

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MANILA CITY MORGUE.

COLLEGE OF MEDICINE AND SURGERY.

NECROPSY RECORD.

Morgue No. 5136; name, Alberto Leaño; Necropsy No. 4175; residence, 984 Int., 24 Singalong, Paco.; sex, male; race, Filipino; age, 12 years; whence received, Philippine General Hospital; duration of illness, about 18 days; died Sept. 24, 1:55 p. m., 1915; Necropsy held Sept. 25, 9:35 a. m., 1915; twenty hours after death, by Dr. Manlove.

Clinical diagnosis—Acute bacillary dysentery.

Anatomic diagnosis—Acute ulcerative colitic (amebic and bacillary). Acute lymphadenitis (mesenteric, lumbar, sacral and mesocolic). Some edema of heart muscle. Acute diffuse nephritis, with fatty infiltration of kidneys. Ascariasis.

C. H. MANLOVE, *Pathologist.*

Body—is that of a rather poorly nourished Filipino male child, whose age is 12, whose weight is 21.51 kilograms and whose length is 133 cm. The skin has a dark brown color. The hair is black, straight, coarse and limited to the scalp. The pupils of the eyes are contracted, the conjunctiva is pale and the cornea is clear. At the right angle of the mouth involving the right angle and an area of 4 or 5 cm. on the right cheek the tissue has a greenish-black necrotic appearance. The mucosa of the mouth is rather pale and covered with some necrotic material, while the teeth are very carious. The superficial lymphatic glands are not palpable. Rigor mortis is present throughout the body. Suggillation is present in the dependent portions of the body.

On Section—of the body there is a small amount of subcutaneous fatty tissue. The musculature has a pale reddish color.

Abdomen—The serosa of the small intestine has a grayish color, while that of the large intestine has a dark gray color, and the entire serosa is moist. The transverse colon is adherent to the gall bladder and to the wall of the stomach. The diaphragm is located at the 4th interspace on the right and the 5th rib on the left. The abdominal viscera otherwise lie in normal relationship to each other.

Thorax—The thymus weighs 6.1 grams, it is small, soft and pinkish.

Pleural Sacs—The left pleural sac contains numerous fibrous adhesions scattered throughout the sac, while the right pleural sac is practically free from adhesions with the exception of some between the lobes, and the sac is moist but does not contain any free fluid.

Lungs—themselves weigh 310 grams, they float high in water, crepitate throughout, and their surfaces vary from a pale gray anteriorly to a bluish gray posteriorly. Section into the lungs shows a smooth, bulging, pinkish surface which is somewhat dry. The bronchi are apparently normal.

Heart—The pericardium is very pale, smooth and thin. The pericardial sac is normal in size and shape, is free from adhesions, but contains a slight excess of straw-colored fluid. The epicardium is very pale, very moist and glistening. The tissues immediately beneath it are somewhat edematous. The heart itself weighs 130 grams, is normal in size. The tricuspid valve admits three fingers and the mitral two fingers. The auricles and ventricles are apparently normal in size and shape. The endocardium is pale, smooth and thin. The musculature is quite pale, somewhat firm in consistence, and cut surface is smooth and quite moist. The blood is coagulated forming coagula of chicken-fat consistence.

Spleen—weighs 67 grams, is normal in shape, somewhat firm in consistence; its capsule is of a light blue color and smooth. Spleen cuts easily, showing a smooth reddish brown colored surface which is moist and from which a small amount of blood-tinged fluid exudes. Upon the surface the lymphoid tissue is not visible.

Adrenals—weigh 10.2 grams; they are somewhat firm in consistence and brownish in color, normal in shape and size.

Kidneys—weigh 180 grams, they appear slightly larger than normal and are surrounded with a small pad of fat, and are somewhat soft in consistence. They cut readily, upon the cut surface the pyramids are about normal in size and shape, of a brownish red color, and the surface appears smooth and com-

pact. The cortex is thickened, is of a pale color with a yellowish tint and bulges. The capsule strips with some resistance, showing a smooth surface of a pale color with a yellowish tint and marked with stellate injections.

Intestines—The serosa has been described. Upon removing the colon there are numerous adhesions along the course of the colon and the epiploicæ are enlarged and vary from a pale to a pinkish color. The contents of the small intestine varies from a thick slimy brown material to a thick turbid brownish fluid in the lower ileum and entire colon. There are present numerous ascarids. The entire colon is altered throughout, its walls are considerably thickened, and when it is loosened from its adhesions to the gall bladder it tears through the entire thickness of the wall. The entire wall is rather friable and somewhat easily torn. The mucosa over the entire colon is greatly altered, the entire being riddled with ulcers, these ulcers varying in size from a few mm. to 1 and 2 cm. and they are irregular in shape. The edges are slightly overhanging, the bases are flat, blackish in color and roughened with necrotic shreds of tissue which hang from them; and the bases appear to be located in the submucosa. The mucosa which surrounds the ulcers is considerably elevated, very pale and very edematous, while the mucosa in other places is roughened by minute papillary elevations of about 2 mm. in diameter and these have a deep red color. In places a thin pseudo-membrane covers the mucosa. Small intestine: The lower 5 to 10 cm. of the small intestine is roughened by minute papillary elevations which are reddened and here the entire wall is thickened; otherwise the small intestine shows the mucosa to be pale, smooth, moist and apparently normal.

Stomach—is apparently normal.

Pancreas—is pale in color, quite firm in consistence and shows no visible change.

Mesentery—The lymphatic glands through the mesentery are enlarged, they are of a pale grayish color and the cut surface bulges showing a smooth moist pale grayish surface. The lymphatic glands in the mesocolic, lumbar and sacral regions are very much similar to those of the mesentery, all of these being enlarged.

Liver—weighs 1061 grams, it is about normal in shape, somewhat firm in consistence, the capsule has a light pale brownish color and is smooth and glistening. Liver cuts easily, showing a smooth, rather pale surface, which is somewhat bulging and quite moist, and upon which the lobules are invisible, the gall ducts and vessels showing no apparent change.

Gall Bladder—contains some thick tarry blackish bile; the mucosa and walls appear to be somewhat thickened. The common bile duct is obstructed, as no bile can be forced through it.

Urinary Bladder—is slightly contracted and contains a small amount of pale urine. The mucosa is pale and smooth throughout.

Aorta—is apparently normal.

HEMORRHOIDS, THEIR CAUSE AND TREATMENT.*

FRANKLIN A. TURNER, M. D.
Ex-President North Central Illinois Medical Association
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The most frequent pathological, the most neglected, and probably the most self-treated condition of the ano-rectal region is hemorrhoids.

I think that we will all agree that hemorrhoids are tumors or growths produced by pathological changes in the veins of the rectum and anus. There is frequently some infiltration of the surrounding tissues and usually some hypertrophy of the anal skin.

They are classified according to their location as follows: 1, internal; 2, external, and, 3, interno-external.

1. The internal are those which are covered with mucous membrane and are usually situated within the rectum, but may protrude from the anus, yet they are nevertheless of the internal variety. 2. The external are those which are covered with integument and are situated outside the external sphincter. 3. The interno-external variety is a combination of the two preceding varieties and is covered with both mucous membrane and skin.

The internal hemorrhoids may be divided into pedicled and sessile and may or may not protrude through the anus. They are also divided into varicose and capillary. The capillary variety may not appear in form of a tumor at all but merely as a circumscribed area which bleeds easily on touch. It is brighter in color than the varicose variety and in appearance somewhat resembles a raspberry. The varicose internal hemorrhoid is darker in color and is caused by a varicose condition of the veins of the superior hemorrhoidal plexus.

The external variety is divided into the integumentary, the varicose, and the thrombotic.

Pennington in the *Journal A. M. A.* for April 3, 1915, classifies piles according to their structure into: 1, those containing fluid blood; 2, those containing clotted blood; 3, those containing both fluid and clotted blood, and, 4, "skin tabs" or cutaneous folds, the fleshy pile.

The thrombotic type is very painful, makes its appearance very suddenly, is of a bluish or purplish color, rounded in shape, and has the

*Read before the North Central Illinois Medical Association.

sensation to the patient of being much larger than it really is. The integumentary variety is usually the remains of the acute thrombotic variety, in which the blood clot has undergone absorption and usually consists of a sac or pouch of thickened or hypertrophied skin. The varicose variety is, as its name implies, a varicose condition of the branches of the inferior hemorrhoidal vein.

Causes.—The chief predisposing cause of hemorrhoids is the upright position of man and the absence of valves in the rectal veins which causes the weight of the column of blood to rest on the veins of the lower rectum and anus, consequently anything which will increase this pressure on the walls of the veins will, of necessity, cause enlargement and dilatation. Constipation *per se* is perhaps one of the least frequent causes of hemorrhoids, but occasionally may be one of the principal factors in their etiology, the large, hard stool pushing the blood ahead of it as it passes down through the rectum, stripping or milking the veins and causing unusual pressure in the hemorrhoidal plexus at the anal canal.

The efforts to relieve constipation by the use of cathartics and enemas are much more frequent causes of hemorrhoids than constipation itself. The irritation caused by liquid feces, or an unclean syringe tip, resulting in minute abrasions which invite the entrance of pathogenic bacteria, is a most potent factor in the cause of a number of ano-rectal diseases including hemorrhoids. Infection with pathogenic bacteria probably plays a greater role in the causation of hemorrhoids than has hitherto been supposed.

Recently, Pennington of Chicago, has done some research work along this line and he has found that the tunics and sacs of the crypts of Morgagni and diverticuli found in this region contain streptococci, staphylococci, colon bacilli, and other bacteria. He has also injected some of the various bacteria found in this region into animals and has succeeded in producing local and constitutional diseases. He states also that he is investigating the value of these diverticuli as points of focal infection and their role as causative factors in hemorrhoids, fistula, constipation, arthritis, endocarditis, and other acute and chronic local and constitutional infections.

Overeating, or anything which causes congestion of the portal circulation is a causative factor in the production of hemorrhoids. Occupation plays an important role in their etiology. People who, during the hours of their occupation are continuously on their feet are much more subject to hemorrhoids than others who follow different occupations. They may also be the result of purely mechanical conditions such as the pressure caused by the pregnant uterus, and in such cases spontaneous cure sometimes follows labor.

Treatment.—The treatment of hemorrhoids is divided into palliative and radical or operative. Palliative treatment rarely if ever cures hemorrhoids permanently, but may give relief in certain cases for a longer or shorter period of time. In prolapsed internal hemorrhoids with more or less strangulation caused by the spasmodic contraction of the external sphincter, due to reflex irritation, it may be imperative, for a short time at least, to apply palliative measures in order to reduce the prolapse, and this is not always an easy thing to accomplish. An application of a 1 to 1,000 solution of adrenalin chloride may constrict the blood vessels so that the reduction may be comparatively easy. The injection of a ½ to 1 per cent solution of quinine and urea hydrochloride into the hemorrhoids may be made with beneficial results.

Recently it has been claimed that hemorrhoids may be permanently cured by the injection of quinine and urea, and a number of proctologists have reported some very satisfactory results following this method. But as I have had no experience with it I shall not attempt to discuss it.

The ideal operation for hemorrhoids is one that will give the minimum loss of time from business and a minimum amount of post operative discomfort, and at the same time accomplish a permanent cure. The unusual amount of post-operative discomfort and the length of confinement following the Whitehead operation and the clamp and cautery have caused many of the leading proctologists to practically abandon these methods and to speak of them only to condemn them. The extraction of a tooth in case of an alveolar abscess, the excision of an infected appendix, or the drainage or removal of the gall bladder in cases of cholecystitis of pyogenic origin, or the removal of any point of focal infection are no longer debatable questions. As-

suming the theory, or even recognizing the possibility, that hemorrhoids may be points of focal infection, which are followed by acute and chronic and local and constitutional diseases, it would seem to be conservative rather than radical treatment, to advocate removal by excision in all cases of the pathological condition under consideration.

Operative Treatment Under Local Anesthesia.—The desire to relieve pain is as old as the human race. Attempts to reach this goal by finding some drug or method that when applied locally, would relieve the pain of surgical operation, extended down through the centuries. The application of cold, which was first used as a local anesthetic about the middle of the sixteenth century, is the only method which has stood the test of time as possessing any merits up to the time of the discovery of modern anesthetics. The fat of the holy animal, the crocodile, or the dried and powdered skin of the same animal, and the stone of Memphis, which was supposed to produce local anesthesia when rubbed on the skin with vinegar, are relics of the religious and mystic ceremonies of ancient Egypt, and have passed with countless others into deserved oblivion.

The compression of nerve trunks to produce local anesthesia, although successful to a marked degree in certain cases, has been abandoned on account of the traumatism to the tissues which it often produced, and were it now in vogue would not be applicable in rectal work, owing to the anatomical relation of the parts involved.

The discovery in 1884 that cocain, when applied in a two per cent solution to the conjunctiva, made it possible to perform many operations on the eye without pain, marked an epoch in the history of local anesthesia. The great toxicity of cocain when injected into the tissues, however, has led investigators to search for a less poisonous drug for this purpose, and many have been placed on the market such as tropocain, eucain, holocain and stovain among others, until the discovery in 1904 of novocain. Novocain is the nearest approach to an ideal local anesthetic that we possess today. It is about one-seventh as toxic as cocain. When used in conjunction with adrenalin chloride solution its absorption is retarded which materially increases the duration and also the degree of anesthesia.

The method first described by Reclus for the circuminjection of the anus is an excellent one. It requires from 75 to 125 "mils" of an 0.5 per cent solution of novocain, to each 30 "mils" of which should be added from 2 to 4 drops of a 1 to 1,000 solution of adrenalin chloride. This when properly given anesthetises the skin surrounding the anus, the external sphincter muscle, and the muco-cutaneous lining of the anal canal sufficiently to permit dilatation of the sphincter, the application of the cautery, or the excision of the hemorrhoids without pain.

Preparation of the Patient.—The patient is sent to the hospital the afternoon before the operation and in the evening is given an enema of plain water as cold as can be borne without causing chills or cramps, using not more than one pint at each injection, and this is repeated until the water returns clear. One ounce of liquid petrolatum is given and repeated three times a day throughout convalescence. The perianal region is shaved and a 1 to 20,000 moist bichloride of mercury dressing applied and left on over night. In the morning the cold enema is repeated two hours before the operation and one-half hour before the operation the patient is given a hypodermic injection of morphin sulphate gr. ¼ and atropin sulphate gr. 1/150. After the local anesthetic has been injected the anal canal is cleansed with soap and water and a 3 per cent tincture of iodine is applied as an antiseptic.

The external thrombotic hemorrhoid is removed by the open method as described by Pennington; an elliptical incision long enough for the clot to be turned out is made over the pile, and after the clot is removed the edges of the wound are left to coapt without sutures. The integumentary variety is treated in the same manner by dissecting out the redundant subcutaneous tissue after the incision has been made and no sutures are applied. The after treatment consists of the application of sterile vaseline and a gauze dressing held in place by a T bandage. The wound heals rapidly and the patient may be on his feet and about in a few hours.

In the internal variety the hemorrhoid is seized at its apex with a special T forceps or an ordinary hemostat, and drawn down external to the sphincter muscle; a blunt, round, noncutting needle, threaded with No. 2 plain catgut, is inserted into the mucous membrane at the upper portion of the base of the hemorrhoid,

passed beneath the mucous membrane and around the base of the pile including the blood vessels and emerges as near the point of insertion as possible, thus including very little or no mucous membrane in the grasp of the ligature. The pile is now treated in the same manner as the external variety, that is by an elliptical incision, and dissecting out, down to within one-quarter of an inch of the ligature, the varicosity which constitutes the hemorrhoid. The after treatment in the internal variety consists in filling the anal canal and lower rectum with sterile vaseline, the insertion of a small drainage tube and the application of an external gauze dressing held in place by a T bandage. The drainage tube is removed at the end of twenty-four hours and the bowels moved with a cold water enema, after which the patient is allowed to be on his feet and walk about. In some cases it is necessary to give a hypodermic injection of morphin sulphate gr. ⅛ and atropin sulphate gr. 1/150 about four to six hours after the operation to control the pain; in other cases no opiate is required. The average patient leaves the hospital on the second day; occasionally one remains to the fourth day.

The advantages of this method over the former methods under general anesthesia are:

1. Patients submit to it much more readily than they will to an operation under general anesthesia.
2. A shorter period of time in the hospital with consequently less expense.
3. A much more rapid convalescence.
4. By no means the least advantage is that you have a pleased and satisfied patient.

501 Trust Building.

OUR SECRETARY.*

D. W. MILLER, M. D.,
GILMAN, ILL.

The county society is the most valuable organization to which a physician can belong. It is here he can express his views and listen to the ideas of his brother physician. It is here we become acquainted with each other and form friendships. In the state society very few ever express their views or have a chance to do so; but listen to some stranger air himself.

And while the county society is a unit of the state society, the state society would not amount to anything if the different county societies were not kept going.

The office of secretary is the most important in the county society. There are so many qualities required in a good secretary that it would be hard to enumerate them. Some of which your present secretary has felt he lacked.

One of the first things that occurs to the secretary is how to secure attendance at the meetings. There are three things that will induce members to attend. While some may attend through a sense of duty and the desire to keep up our organization, others will attend for the pleasure of meeting our brother physicians and having a good time. Still others will attend in the hope of obtaining some thing that will help them in their work.

Having had the honor of serving the society as secretary for the past three years and turning the office over to my successor the first day of January, I would like to take this opportunity to thank the members for their co-operation during the time we have served you. However efficient the secretary is, unless the members will work with him, the society will drag. Twenty-two members of the society have read one or more papers during the three years. Thirteen of these papers have been published in the JOURNAL; all valuable contributions to medical literature. We have had eight papers from non-members.

I have felt when the meetings were not as well attended as we expected, that the program did not appeal to them. It is so easy for a member to have an excuse not to attend a meeting unless something appeals to him very strongly on the program. He sometimes has a confinement case that is due or he is afraid something will happen while he is away and his competitor will get one of his cases. I think it is patent to all that the physicians who have made the greatest success in the practice of medicine and have the largest practice on the surest foundation are the physicians who are the most constant attendants at the society meetings.

We know there are some who have a meteoric existence who take no interest in the work of their brother physicians.

While some of the meetings were poorly attended others were well attended, bringing the average attendance up to about eighteen.

*Read before the Iroquois-Ford Medical Society, Dec. 5, 1916.

What can we do to obtain a better attendance at our meetings and who will answer it?

Our meetings promote harmony among us and we find that the fellow we heard some one speak disparagingly about is not such a bad fellow after all. On the other hand, one who never attends society meetings becomes narrow and will have no regard for medical ethics, be as it were a medical outlaw, and not worthy of the title of physician.

Section three of chapter two of our by-laws says that at least one meeting a year shall be set apart for a discussion of the business affairs of the profession in the county with a view of adopting the best methods for the guidance of all. We have been negligent of this and for the meeting today I have placed on the program a time to consider business at a time when we have an officer of the state society with us to give us advice.

Since the state society compels us to pay in advance or be deprived of our protection in the way of the defense fund, I think a good many members do not realize that feature. We have to pay one dollar a year into the defense fund and we should have the benefit of it.

We don't dispute paying all other kinds of insurance in advance and why should we this?

Our dues at three dollars a year are very reasonable, considering what we get for it. One dollar and a half is for membership in the state society, one dollar for the defense fund and fifty cents is for the expense of the county society. Fifty cents is not enough for our society, but as we have a surplus of about one hundred dollars we can run for several years yet without raising the dues.

It would be a great help to the secretary if all members would report to the secretary the names of any new physicians who move into their vicinity, or the names of any who have moved away. This will enable the secretary in his annual report to the State Medical Society to make it more fully. The State Society requires the names of non-members as well as members. While I have derived great pleasure from doing the work of the secretary, it affords me some satisfaction to turn over the office to a more competent successor. We think it is to the advantage to change secretaries occasionally, as a new man will have something new to interest the members.

SOME FORMS OF INSANITY MOST FREQUENTLY MET BY PHYSICIANS.*

C. H. Anderson, M. D.,
MCLEANSBORO, ILL.

The writer will not attempt in this brief article to give a definition of that elusive mental condition usually known as insanity for no definition so far formulated has been sufficiently elastic to cover all its types and forms.

Psychiatrists and medico-legal authorities for decades have vied with each other in attempting to construct a definition that will be sufficiently comprehensive to include all forms of mental aberration, but no matter how carefully constructed all definitions so far stated have been incomplete and show conclusively that the fundamental features of the condition known as insanity are imperfectly understood.

The judiciary, throughout the long discussion of medico-legal questions, has been shackled with the incorrect idea that an individual to be insane must be violent in action and his mental state adorned with delusions, hallucinations and illusions in thought. Psychiatrists have to the contrary contended that any variation from the normal standard of mental action constitutes insanity.

Admitting that no perfect definition of insanity has been given we can not be surprised that no scientific classification of the forms of insanity has been proposed.

The great Kraepelin by one stroke of the pen has rendered the terms mania, melancholia and circular insanity obsolete and no recognized authority will now dare use them in a scientific treatise on the subject.

Kraepelin's researches in the field of psychiatry have opened to the world vast store houses of knowledge that have not been dreamed of and have placed the science on a basis that permits as complete a knowledge of this branch of science as any other department of medicine.

This field is large and offers great possibilities for those who have a natural turn for investigations.

The writer asks his hearers not to pass judgment too quickly on the truth of the statement that as many people in this world are ailing mentally as are ailing physically. But few people whom you meet are perfectly sound physically,

*Read before the Jefferson County Medical Society, Nov 24, 1916.

so but few people if measured by a true standard of sanity are found to be mentally sound.

Mental derangement is not usually recognized until the disturbance becomes so great that the individual is completely incapacitated for maintaining his or her proper place in the social realm.

As the science of psychiatry becomes more exact the alienist is enabled to discover mental defects in individuals that had hitherto escaped notice.

To prevent the needless extension of this paper we will proceed to describe some of the salient features of the forms of insanity most frequently met by physicians in the routine of his daily practice.

As has previously been stated, the classification used will be that proposed by Kraepelin and now adopted by all modern writers on psychiatry.

General paresis is a form of insanity that is most frequently met in persons giving a history of syphilis. It is characterized by a distinct group of physical symptoms as well as mental.

The disease in its incipiency is characterized by symptoms of defective intelligence, lack of judgment, memory defects and moral obtuseness. We usually find a previously respected father, of a family, occupying an enviable social position, become, at the height of his career, an ardent worshipper at the shrine of Venus and Bacchus. Friends and relatives see nothing in these actions but the outcropping of the original sin and are powerless to check the career of vice and drunkenness that their erstwhile respected relative had entered. How many heart-aches and pains of anguish could be spared the wife and other relatives if the family physician could recognize in these occurrences the onset of an incurable mental disease.

For convenience of description the disease has been divided into three stages. The Argyll-Robertson pupil is one of the most frequent signs of the first stage. Earlier still than the development of the Argyll-Robertson pupil will be noticed a loss of the sympathetic and consensual reflexes.

The reflexes of the body, and most usually the patellar reflex will become disturbed. Most frequently these reflexes are exaggerated, but may be inhibited. This disturbance may be unilateral or bilateral. The mental symptoms of this stage show a gradual but progressive dementia. The grandiose paretic is obsessed with great wealth. Not content with possessing a few paltry thousands he reckons his fortune by the millions. He becomes lavish in the expenditures of his money, purchasing many needless things. A fortune may in this way be dissipated in a short time. The depressed paretic may have caused the death of many people. The hypochondriacal paretic has no stomach, no bowels, no brain and is dead though able to walk and talk. The delusions are due to and characteristic of an impaired intellect. Speech defects are noticed and a tremor of the tongue and fingers, when extended, and of the muscles of the face develop.

In the second stage the tremors become more marked, the Romberg sign develops, the walk becomes ataxic and epileptiform seizures begin. These epileptiform seizures develop into apoplectiform seizures, but the resulting paralysis is not permanent. Toward the close of this period the tremor becomes more extensive, the speech becomes slow and defective and the handwriting becomes cramped and irregular. The memory utterly fails and the signs of dementia become more marked.

In the third stage the physical symptoms become more marked, the tremor more constant and the ataxia so marked that walking becomes dangerous, if not difficult. The patient often ceases to lead a mental life, but only leads a vegetative existence. The patient often becomes bed-ridden and may lose both the anal and vesicular reflexes. Speech becomes a mass of stammering, stumbling and incoherent sounds in which now and then a word may be spoken.

Another type of insanity frequently met is dementia præcox. As its name implies, this disease usually develops between the ages of 14 and 20 years. These patients become cold, passive and disinterested in their surroundings. They rarely express a wish, do not react to their surroundings, are well oriented as to time, place and persons, but memory is faultless and shows up well in an examination of their intelligence.

These patients sit for hours without interest in the events transpiring about them—will not resent insult nor will they show adequate affective reaction. If called an obscene name or told of the death of a near and dear relative only casual interest will be shown. He sits cold and passive

without so much as moving an eyelash. These patients usually show a failure of voluntary attention and a general lack of interest. In the same way they show a marked emotional deteriation and a poverty of thought. They also show a deprivation of thought and a lengthened reaction time. The complex indicators of this form of insanity are stereotypies, speech preservations and neologisms.

Probably the class of insane cases of most interest to the physician is the manic-depressive group.

In former classifications all the excited and exalted cases were included under the designation of mania while the depressed cases were called melancholia.

Kraepelin came forward with the key to the mystery and demonstrated that almost all cases of a manic type showed melancholia symptoms at times and cases of melancholia showed symptoms of mania at intervals.

This fact proved that the condition known as mania and melancholia were different phases of the same disease. To this extensive group of cases he gave the name manic-depressive. In these cases the manic phase alternates with more or less regularity with the melancholic phase. The manic phase is characterized by flights of ideas, pressure of activity and emotional excitement.

The flight of ideas is shown by the rapid transition of thought from one subject to another before the final goal in thought is reached.

The play of ideas is so rapid that the full thought can not be expressed in words; therefore the sentences are broken and not much more than a jumble of words. Pressure of activity is shown by a restless state that will not permit the patient to sit or stand long in one position. These changes are so rapid that no task undertaken can be brought to a conclusion because the actions, like the thoughts, rapidly change from one subject to another. Emotional excitement is shown by undue excitement, usually of a pleasant nature.

The patient will jump about, dance, sing, utter extraordinary sounds and at all times manifest a gleeful mood. They often manifest bizarre delusions of a fantastic nature.

They often count their money by the billions and by the magic of a word or gesture nature is transformed into a beautiful garden, extensive gold mines are created or thriving cities are built. They often believe that they own vast fleets of ships sailing the seas laden with gold and precious stones.

They readily bestow on others vast wealth or even worlds. In this condition the flight of ideas is so great as to amount almost to a complete incoherence and the pressure of activity so striking as to give the impression of muscular coordination.

The depressive stage of manic-depressive insanity likewise manifests itself by three cardinal symptoms, each of which is a counterpart of the opposing symptom of the manic phase. These symptoms are difficulty of thinking, psychomotor retardation and emotional depression.

These symptoms, like the manic set, may manifest themselves in any degree of severity. These patients move slowly, think slowly, react to environment slowly, often speak only in a whisper, and often answer questions in monosyllables. They sit about with folded hands doing nothing, they are incapable of any effort, for reading even becomes laborious. They sit with a downcast countenance, depicting mental anguish in their faces. This mental anguish is usually due to a train of self accusatory delusions. The patients often think themselves responsible for all the sin, the anguish and the woes of the world; they are responsible for all the wickedness and privation in the world and they have committed some great sin and are forever lost. Or they may be obsessed with hypochondriacal ideas; they think they have some incurable disease, that their internal organs are dead or removed and that something dreadful has happened to them.

Peculiar sensations about the body often lead to ideas of disaggregation of the personality. For example, the patient may go to the looking glass and aver that their eyes look like cats' eyes and are cats' eyes. These often lead to ideas of a transformation of personality or a belief that another being has taken possession of them. Hallucinations may occur, but consciousness remains clear. In some cases a condition of depressive stupor occurs in which the patient cannot be induced to speak. He may lie in bed for days in a completely inactive state and take no nourishment except when forcibly fed.

Another extensive group of cases are classified under the name paranoia.

A fundamental feature characterizing this important group is that the mental impairment is not equally diffused over the entire mental field, hence they have been in the past classified under the term monomania by early writers.

Paranoiacs often appear bright, alert and mentally competent on all points except one. Paranoia has more to do with the delusional system than any other type. For the purpose of description only the disease has been divided into three stages, namely, first, the hypochondriacal, or stage of subjective analysis; second, the stage of persecution; third, the stage of transformation of personality.

In the first stage the patient becomes noncommunicative and wrapped up in his own thoughts. Unusual feelings occur, headaches, dizziness, weakness, insomnia and nervousness develop. He can not understand these sensations, but continually worries about hypochondriacal ideas. With this condition is associated a marked depression. He soon begins to notice that people act differently towards him, when he goes into a room someone goes out, people spit when they pass him or people standing here and there in groups are talking about him. He imagines people are making disparaging remarks about him. He imagines that everything occurring about him has some reference to him. These ideas are called ideas of reference. This condition grows progressively worse, the ideas are not corrected and because the patient keeps himself apart from others fails to give acts and circumstances their proper coloring.

The second stage is characterized by delusions of persecution which are usually explained on the theory that some malign influence is operating against them. During this stage hallucinations of hearing develop. These patients hear distinct voices making disparaging remarks about them or saying grossly insulting things to them. From this time on the delusions of persecution occupy the entire field of mental activity. The malign influences are recognized as organized efforts on the part of secret societies, perhaps the Masons, the Catholics or some political party. The agents of these societies are ever near him, trailing him from place to place. They poison his food and water, inject poisonous gases into his lungs or send electric currents through his body. These organizations seek in many ways to take his life.

Soon a new system of delusions develop—delusions of explanation. The patient now flees from place to place, but everywhere he goes the ever-present persecutors are there. Finding his efforts to escape his tormentors futile, he constructs many ingenious devices to escape them. The keyhole and cracks about the door are stopped with paper. Desperation after a while seizes him and he turns upon his supposed enemies and some of the worst deeds of the criminal catalogue are committed.

After a while he develops delusions of self-importance. He believes that these gigantic schemes for his destruction would not be formed were he not a very extraordinary person. He then arrives at the conclusion that he is the pope, the son or some reigning monarch of even Jesus Christ.

In proof of these ideas of self-importance he delves into his childhood days and attaches a mysterious importance to trivial occurrences in the early period of life. He denies that the man and woman he formerly called father and mother were related to him, because he was a descendant of either royalty or divinity.

The transformation of personality now becomes complete. The patient lives, moves and has his being in a higher atmosphere than the mass of people live. These cases usually terminate in a final state of mental enfeeblement.

PYELITIS TREATED SUCCESSFULLY WITH SILVOL.*

J. C. R. WETTSTEIN, M. D.,
Urologist to St. Anthony's Hospital.
EFFINGHAM, ILL.

The clinical picture of pyelitis has, during the last year, become better recognized and appreciated. Before ureteral catheterization was perfected a definite recognition of it was impossible. Lenhartz, as a result of brilliant original work, was the first to establish the typical "fever curve" and to describe the clear, sharply outlined clinical picture of pyelitis.

Pyelitis is always the result of infection. It pursues either an acute course with a typical fever curve (abrupt onset, continuous high fever,

*Read by title before annual meeting, Effingham County Medical Society, Effingham, Ill., Oct. 9, 1916.

falling by crisis or short lysis) or a chronic course.

The progress of the disease does not depend entirely upon the mode of infection, nor upon the bacteria present, or of their greater or lesser toxicity, but also upon mechanical considerations, i. e., whether or not the disease products find an outlet with difficulty or facility. Misplaced insertion of the ureters in the kidney pelvis, valve-like formations, adhesions, etc., all play a role and give to each case its note of individuality.

Scheidemantel mentions loin pains, kidney pressure pain, nycturia, bacteriuria and pyuria as important diagnostic symptoms of pyelitis.

The loin pains in the acute cases are very violent and radiate to the abdomen and are also usually present in chronic forms. However, they are not diagnostic and are not to be distinguished from those of renal stone, gouty kidney, etc.

The so-called kidney-pressure pain is always ascertainable by bi-manual palpation. It should more correctly be called kidney pelvis-pressure pain because it is the pelvis of the kidney which reacts to tension and increased pressure. From a differential diagnosis standpoint it is of little value, for the same pain occurs in other diseases of the kidney.

Nycturia is usually present in acute and in febrile relapses of chronic cases. In one case running a chronic course I found the reverse of the above true, there being no nocturnal evacuation of the bladder or at the most only once. Nycturia is not constant in chronic pyelitis unless there is some prostatic involvement. Of course in the chronic cases all the symptoms or irritation are much lighter.

Concerning the bladder, it is possible it may remain healthy in acute cases, but it is always drawn into the condition in chronic forms. In all literature at my disposal I have never seen a report of a chronic case in which the bladder remained free from pathological changes.

I wish to emphasize here that especially in pyelitis, parenchymatous cystitis is proportionately of frequent observation. This form, which could well be designated as "pyelitic irritable bladder," gives rise to a very tormenting and painful condition. The urination is frequent, urgent and accompanied and followed by an attack of pain. The bladder is extremely sensitive and does not bear irrigation with the ordinary solutions. I believe that most cases of so-called "cystitis dolorosa," provided they are not of a tuberculous or carcinomatous etiology, have their explanation in an old pyelitis.

The pelvis of the kidney, which in the adult under healthy conditions can contain 8 to 10 cc. of fluid without pain resulting therefrom, does not need to be enlarged in pyelitis. However, if the discharge is obstructed the formation of a large sac can take place. It was formerly believed that when a large tumor was present in pyelitis the kidney was also involved. This I do not think is so, due to the fact that in some cases in which large pus cavities were present the kidneys remained unaffected. With careful management and after evacuation by catheter, these cavities recover. (Fritz.)

A large number of cases of pyelitis occur during pregnancy. It is frequently overlooked as long as it does not cause any annoyance, and only brings the patient to the physician when the growing uterus begins to obstruct the discharge of the pus laden urine.

The most important information for the diagnosis of pyelitis is given by the examination of the urine. The albumin content in pure pyelitis is always several decigrams per liter and is the result of broken down pus cells. Casts, or red blood corpuscles, are not present. If red blood corpuscles be constantly present in conjunction with casts, they denote either a pyelonephritic process, or (aside from the rare bacillus proteus infection) stone in the kidney, tuberculosis or tumor.

For the diagnosis of pyelitis all the above information possesses a preliminary character only. The diagnosis can be established only with certainty by cystoscopy, kidney catheterization, and urinalysis. In every chronic case, ureter-cystoscopy is absolutely demanded.

In regard to the route of infection we ordinarily differentiate between that of a descending and that of the ascending form; the descending form originates directly through the blood stream (hematogenous infection) and the ascending infection through the lymphatics. The hematogenous infection is, in general, well understood; the germs reach the kidney through the blood, are filtered through the kidney tissue, which results in an irritation to the renal substance, and finally reach the pelvis, where they lodge.

Treatment: I shall not go into the routine treatment of pyelitis, but wish to state my results with the use of Silvol, the new proteid-silver compound, in this disease. I have secured excellent results with its use as an irrigation to the kidney pelvis. I begin with a 5 per cent aqueous solution; after several treatments with this strength, I increase it to 10 per cent, and finally use a 15 per cent solution. It has the advantage that, in addition to being an active germicide it is non-irritating and non-toxic. Its non-irritating properties are especially to be commended for pelvic irrigation work in pyelitis.

Pyelography: Silvol being a silver compound and having found it so non-irritating in pyelitis, I was very interested to know if it would be suitable for pyelography. In order to prove this point I determined to first do some experimental work. Therefore, I secured a dozen fresh pig kidneys and used solutions varying from 5 to 25 per cent with the following results:

Strength of Silvol—Result:

Five per cent solution; no shadow.

Ten per cent solution; very faint shadow.

Fifteen per cent solution; shadow more distinct, but not sufficient.

Twenty per cent solution; shadow distinct, but outline of pelvis of kidney not clear.

Twenty-five per cent solution; shadow clear and outline of pelvis of kidney very clear and distinct.

It is hardly necessary to comment on the above. As a result of this experimentation I now use a 25 per cent solution for pyelography in the human with excellent results. There is no pain, distress or discomfort.

The following interesting case of acute pyelitis will serve to illustrate my use of the preparation in this condition:

Case 1—Male, aged 57 years, farmer. Entered hospital June 3, 1916.

Family history: Father died at 54 from Bright's disease, sister at 50 from tuberculosis.

Present history: Chills, fever, loss of weight, frequent and painful urination, pain and soreness in left renal region.

Personal history: In good health until three or four years ago, when he suffered from an upper right quadrant attack, probably gall stones. At this time he noticed it was difficult to start urination, and that he had to get up several times during the night. His trouble continued until the present attack.

Present trouble: About seven weeks ago had a slight chill, fever, pain in left renal region, frequent and painful urination both day and night, temperature 102 degrees to 103 degrees, extreme soreness in left renal region extending over mid line of abdomen.

Physical examination: Normal weight 160, at present 125 to 130 and appears much emaciated. Eyes negative. Teeth decayed. Tongue coated and dry. Neck and chest negative. Heart steady and regular with fair pulse volume. Abdomen flat, no masses to be felt but a fullness in upper abdomen. Liver sore and gall bladder region very resistant and tender. Right renal region moderately tender. Left renal region very tender and rigid and also on fist percussion. Tenderness along the course of left ureter and over bladder. Middle lobe of prostate moderately enlarged.

Blood: Hemoglobin 45 per cent. Red blood corpuscles 2,300,000 and their morphology was as we could expect from such an anemia. Blood pressure 60 to 100.

Urine: Upon catheterization of bladder a retention of 150 cc. Specific gravity 1,010, acid, and 1 per cent, albumin present. Microscopically nothing but pus cells could be seen; no red blood corpuscles; colon bacilli present but no tubercle bacilli.

Cystoscopy: The bladder was so completely covered with mucus and pus that it was impossible to see the mucosa. Irrigations were continued for four days, at which time the following findings were present:

The median lobe of prostate was enlarged and sensitive. The anterior and posterior urethra sensitive and inflamed. Entire bladder mucosa inflamed and trabeculated. An ulcer present at margin of left ureteral orifice, and right ureteral orifice inflamed. Each ureter was 35 inches in length and non-obstructive. However, the left was very painful and the right slightly so upon passing catheter.

The catheterized kidney specimen from the right kidney showed no red blood corpuscles, 40 to 50 pus cells to the field, pus casts and bladder epithelium. A similar specimen from the left kidney showed a few red blood corpuscles, 50 to 70 pus cells, epithelium and pus casts. Stained specimens revealed leukocytes and colon bacilli present in the urine from both kidneys. Although repeated specimens were stained, from both bladder and kidney, no tubercle bacilli could be found. Cultural growths showed colon bacilli and staphylococci, mostly colon. With the thalein functional activity test, the first appearance of the drug from the right kidney was in 17 minutes. It eliminated 30 per cent. the first hour and 20 per cent. the second hour, a total of 50 per cent. With left kidney, the first appearance was in 15 minutes, and 40 per cent. eliminated the first hour, 30 per cent. the second hour, making a total of 70 per cent.

Another cystoscopic examination was made on June 12, and confirmed above findings. A radiograph made with x-ray catheter in left kidney was negative.

The local treatment in this case was as follows: Daily bladder irrigations of boric acid were made.

(Continued to page 204)

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

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State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

MARCH, 1917

Editorials

CHANGE OF DATE—ANNUAL MEETING AT BLOOMINGTON—ONE WEEK EARLIER

A circumstance has arisen over which neither the President, Council nor Committee of Arrangements had any control, which, unfortunately, makes it imperative that the date of the Annual Meeting be changed. The President, with the concurrence of the Council, has set the date of the Annual Meeting one week earlier—May 8, 9 and 10.

We hope this will make no material difference with the attendance, and that particularly those members reading papers will be able to attend.

NOTICE.

The by-laws provide that all members in arrears on Dec. 31st of any current year shall be dropped from membership. Accordingly many members of the Illinois State Medical Society will not receive their March JOURNAL and will not be protected by the Medicolegal Committee in case of malpractice until they have been reinstated.

If you are not sure of your standing in your county society, please take the matter up with your secretary and see that he gets busy at once.

W. H. GILMORE, Secretary.

SENATE BILL 90.

A bill is pending before the legislature, which, if it becomes a law, will very seriously affect the operating of hospitals. The bill is known as Senate Bill 90, and the section which is objectionable reads as follows:

"Section 1. That no female shall be employed in any mechanical or mercantile establishment, or factory, or laundry, or hotel, or restaurant, or hospital, or telegraph or telephone establishment or office thereof, or in any place of amusement, or by any person, firm or corporation engaged in any express or transportation or public utility business, or by any common carrier, or in any public institution, incorporated or unincorporated, in this state, more than eight hours during any one day. The hours of work may be so arranged as to permit the employment of females at any time so that they shall not work more than eight hours during the twenty-four hours of any day or more than forty-eight hours in any week: provided, that the provisions of this section shall not apply to graduate nurses or nurses assigned to services in operating rooms in hospitals.

Of course, this section was written by some one almost ignorant of anything or everything pertaining to hospital service, but this makes the bill no less obnoxious.

Graduate nurses doing private duty are exempt. They may, under this bill, work twenty-four hours per day. As hospital nurses are practically all nurses in training receiving their education, it is just as reasonable to limit the working hours of an university student to forty-eight hours per week.

There are many objections to the tentative measure. It is impractical to operate a hospital on the eight-hour basis. It is just as practical and equitable to limit the working hours of your domestic servants to eight hours per day, six days per week.

Those hospitals upon which the burden will fall most heavily are those that care for a large

number of laboring people, farmers and other people of limited means. It, of course, will mean that the hospital will be compelled to run three sets of nurses and the same of other help. This will at once necessitate the raising of prices at least twenty-five per cent—perhaps more—for hospital service. This increased cost of hospital care will, in the main, fall upon the poorer class, which is not financially able to afford it. It is estimated that from sixty to ninety per cent. of patients in hospitals are from the laboring classes. Of course, the people who promulgate this bill know all about the increased danger in having several sets of people take care of a critically ill patient.

The Chicago Hospital Association, which includes nearly all the hospitals in Chicago, has opposed the measure with the following objections:

1. Nursing is a profession. It stands in the same relation to the sick of the world as the medical profession. The work of nurses can no more be regulated by a hard and fast law than can the work of the doctors or mothers. The sick and the children are here and they must be cared for. The nurses all over the world will protest at being classed as wage earners.

2. Nurses in training are not employes in the sense that they are wage earners. They are a part of the hospital family and are cared for as a father cares for his children. The money given them is only given as pin money to take care of books, carfare, etc., not as wages. Their whole so-called working time is devoted to the study of the theory and practice of nursing.

3. There exists an erroneous idea that nurses in training are abused and overworked, a broken-down, sickly lot, while in reality, nurses are the healthiest young women in the world, because they live regular hours, eat regularly, sleep regularly and enough, and are taught and made to practice the rules of hygiene that spell HEALTH. The health and well-being of the nurses are of such paramount importance to a hospital that there is no necessity for outside legislation to regulate this. The hospital, to exist, must see that its nurses are mentally, morally and physically right.

4. If the time of the nurses in training is to be reduced, it will be necessary to increase the length of the course in the training schools. There is no more time than is necessary now, to teach them what they must know.

Furthermore, it will require at least a third more nurses in training than we now have, and this will so greatly increase the expense of conducting the hospitals that it will be necessary to raise the rates in all hospitals and reduce the amount of charity done. Hospitals are not money-making institutions. They exist for the benefit of the sick of all classes, and it is all that a hospital can do now to get money enough to keep its doors open.

5. The hospital cannot be put in the same category as offices, factories, stores, etc. Hospitals must be kept open night and day, seven days in the week.

6. It is apparent that no proper investigation of hospital conditions has been made by any person or persons competent to judge the needs of nurses or employes, to say nothing of the need of hospitals in connection with the introduction of this bill.

We object to supervision of hospitals at the hands of factory inspectors. Investigation and regulation of hospitals in the state is heartily approved, but should be directed by the State Board of Health.

WHY NOT JOIN THE UNION?

Why should not doctors form a labor union—an eight-hour day, double pay for overtime, nights, Sundays and holidays?

Our guess would be that those people advocating an eight-hour nursing bill and a compulsory health insurance bill—people who are ignorant of health matters, but who, nevertheless, are constantly forcing their ill-advised notions upon legislators—would be the first to complain of such an injustice. It would almost be worth the price to hear the noise.

NEW YORK MEDICAL SOCIETY REJECTS HEALTH INSURANCE

Resolution adopted by the Medical Society of the County of New York at an adjourned meeting of the society, Wednesday evening, February 14, 1917:

Resolved, That this Society disapproves of the medical provisions of the Bill for Compulsory Health Insurance and the appointment of a Legislative Commission to study the subject, and directs its Committee on Legislation and the Delegates of the Medical Society of the County of New York to the Medical Society of the State of New York to take the proper measures to oppose its passage by the Legislature.

RUSH ALUMNI.

We would call the attention of the Rush Alumni to the communication of Doctor Freer, published elsewhere in this issue. Doctor Freer has shown the other side of the passing of Rush Medical College,—the side which we have not heard much about.

The name of Rush Medical College should always remain alive, and Rush College should

not cease to exist. No doubt, as the Medical Department of the University of Chicago, the college will receive a greater financial aid, but medical colleges need other things than money. A medical college needs an alumni association,—one that is loyal to the Alma Mater. There will not be an alumni association behind the new organization. It is truly the passing of Rush.

IS RUSH MEDICAL COLLEGE TO BECOME EXTINCT? AN APPEAL TO THE ALUMNI.

OTTO TIGER FREER, M. D.
CHICAGO.

In Polk's Medical Directory of the United States and Canada the number 126 is found often repeated in the columns of names, this number indicating a graduate of Rush Medical College. The date of graduation after the number, however, is usually before 1902, the dates since then showing but a scattering of Rush men among those from other colleges. This means that the great majority of the sons of Rush has become middle aged, elderly or old and that the great army of Rush graduates in the Western hemisphere is rapidly shrinking for reasons to be explained here, which will also show why even the trickling stream that now serves to keep the alumni of Rush from final extinction is soon to be shut off, so that the alumni association, left without recruits, will become a hopelessly dwindling band which will shrink from year to year until the last Rush alumnus will hold the last Rush alumni banquet, alone, as chairman, secretary and house all in one, to give a ghostly toast to his ghostly alma mater, long since dead.

In 1898 the great leaders of Rush of the last decades of the past century were gone from earth or were going fast. *AS A SACRED TRUST* they left Rush Medical College to successors to preserve until they in turn laid down the leadership. These men, forsaking the safe path of gradual upbuilding of the college that had been followed by their elders, decided at the price of the independence of Rush to make it the medical department of the University of Chicago. Awed by the great wealth of the new university and of its founder, in misplaced humility, they did not see the greatness of their own school, with its magnificent history, its immense throng of alumni, the cream of the medical profession, and so, not daring to demand the equitable bargain they were entitled to, they gave Rush Medical College, its destinies, freedom and property to the university, without exacting a single pledge in return, merely accepting a promise from the president of the university that he would do his best to get its founder to endow Rush as its medical department. An endowment of six million dollars was humbly hoped for. Instead of being made a party to a properly safeguarded bargain therefore, Rush College was made to risk its existence in a mere speculation. As is the case with most speculations, expectations were not fulfilled. No money was given to Rush, which was merely permitted an humiliating "affiliation" whose very existence loudly proclaimed that the University did not regard Rush as worthy of an organic union. Without furnishing the college funds to properly carry out the demands made upon it the university insisted upon so drastic a raising of the standard of admission to the college and upon so great an increase of the years of study, that Rush was deprived of so many of its students and their fees that only a financial struggle and the most rigid economy enabled it to exist. The university undertook the teaching of the fundamentals in the first two years, but also generously deprived Rush of the fees of these years. In fact, Rush was changed from a great, energetic, independent medical college, free to progress in its own way, to an imitation University Medical School without the very necessary vast means required by a university school, while its freedom of direction was replaced by onerous restrictions and exactions imposed by another institution that did not understand its needs.

Class unity and the immensely valuable influence of the older upon the younger students were lost by dividing the teaching between two faculties separated by many miles of city. The younger teachers who were working to establish themselves in the specialties were disheartened by the reduction of the classes to so few men, that they were practically deprived of their only reward for teaching, future references from their students after they had entered practice. Clinical facilities were of anything but university grade. The dispensary clinics lacked equipment, anatomical specimens and above all, attendants to care for instruments, apparatus and draw-

ings. The removal of the department of anatomy to the University made the very necessary cadaver demonstrations and cadaver practice for the students so difficult, because of the great distance of the college from the university, that they were practically impossible, except for the two teachers who had cadavers especially assigned to them at the college. Although the Presbyterian Hospital grew amazingly in space for private patients, there was as great a lack of free beds as ever, so that in our department patients needing operation often had to be sent away as there was no room for them in the hospital.

Putting the best face upon the matter, the faculty leaders referred to the days of large classes in Rush before the affiliation as a period to be ashamed of and extolled the system which sent a few highly drilled students into the world instead of the lusty throng, that for over a half century had been such a blessing to the land that to be a "Rush Man" was to be regarded by the community as being of the best in medicine. The faculty ignored the fact that in regard to service to the state it is better for a medical college to graduate two hundred students 90 per cent. good than ten students 100 per cent. good, especially as the rejected 190 students that might have attained the 90 per cent. grade were forced to seek inferior schools that gave them a far lower percentage of medical worth than was obtainable at Rush. By concentration of the efforts of the entire faculty on only one student he might have become ineffably sublimated, but it would have been a poor function for a great college.

The faculty leaders also shut their eyes to the past history of Rush, which showed a continual tendency to conservative but steady advance in standard, and they always refer to the Rush of the large classes at the end of the '90's as if, as an independent college, it would have always clung to the standard of that time.

During the eighteen years since the affiliation Rush has had no financial help from the university and has been left to struggle on as best it could. Now at last, thanks in part to the efforts of members of the faculty of Rush, a vast sum has been raised—to do what? To do what was expected would be done at the time of the affiliation, to make Rush Medical College the medical department of the University of Chicago? Not at all, to found a new medical school at the University, for the University, managed by the University alone, and—to deprive old Rush of its existence.

The entire faculty of Rush is to resign and disband. The property of Rush is to be taken over by the University. A graduate school is to be created upon the site of the present Rush College buildings and it is intended *perhaps* to give this the name of Rush, "to please the alumni." It is uplifting to feel that we are to have so much consideration shown us, but a graduate school does not make doctors and will do nothing to keep the alumni association alive. Nor will the alumni of the New Medical School on the Midway be in any sense alumni of Rush. The Rush alumni will indeed have to have most active imaginations to think themselves alumni of this new department of the university and to think its graduates their fellows and the latter, bred in an exalted scholastic atmosphere as a highly cultivated special breed of medical men, will hardly consent to regard themselves as Rush alumni. To quote the University of Chicago Magazine: "This will provide in the quadrangles of the university a complete medical school, leading to the degrees of doctor of medicine, to be given by the University of Chicago." No mention of Rush there!

In the Bulletin of the Rush Alumni Association for January, 1917, in articles by Dr. Billings, Dr. Ingals and Dr. Dodson, the plans, future and wealth of the coming medical school of the University of Chicago are fully set forth. Dr. Billings says that "every alumnus of Rush Medical College must feel a just pride that his alma mater will take a part in this wonderful medical school." Whether every alumnus should feel this undeniably correct and commendable variety of pride depends, to my thinking, entirely upon the manner of this participation of his alma mater. The "part" which it is indicated that old Mother Rush is to take is obviously that of elimination. The matter would, indeed have been different if the intention were to make the coming University of Chicago Medical School what we all expected it would be at the time of the affiliation in 1898, namely, Rush Medical College, Medical Department of the University of Chicago. It looks to me as if the leaders of the faculty and the authorities of the

University of Chicago were ashamed of old mother Rush, didn't think her worthy of the refined atmosphere of the university circles. Now it seems to me and I think that the alumni of Rush will agree with me, that the name Rush Medical College has been a glorious one from the time of its origin in the first half of the last century until the affiliation in 1898, and that it is a name that any American university should be proud to acquire for one of its departments. There are enough "halls" named after donors whose chief merit was wealth brought to the university. Rush brought the fame of the best and greatest medical school in the west and a long historic line of illustrious names from Brainard to Fenger. To now give away the great name of Rush to a graduate school, a side show, when her purpose has always been that of making the best doctors in America, is merely to placate the alumni by "preserving" the name of Rush in a manner quite at odds with the purpose for which Rush Medical College was founded; it is to pervert the sacred bequest of the earnest men who conducted the affairs of Rush in the past.

Even were the new medical school of the University given the name of Rush, it would not be Rush Medical College, for the new school will be a new creation holding neither the traditions, history nor spirit of Rush, and will no more be Rush than is the Medical Department of the University of Michigan.

Dr. Billings says: "I feel sure, too, that the glorious reputation of Rush Medical College and its name will be preserved." He need not worry about the reputation, that will endure, but—the name! When one says one "feels sure" one is not quite sure.

The stern logic of the case is that with the beginning of the new school Rush will end. The efforts of the part of the faculty that helped to make the new school for the university were in the interest of the university and not of Rush, which as a medical college, is to be eliminated, that is, the production of alumni of Rush Medical College is to cease for all time. It is mere make believe to regard the alumni of the new school as Rush alumni; such a transmigration of souls can not take place.

Had the leaders in the faculty served old Rush instead of the university our college might now still be the great, proud, independent medical school it once was, enriched by this time by endowments and, keeping abreast of the times, as it always did, in standard and equipment.

Would the men who conducted the fortunes of Rush in the last century, all so enthusiastically loyal to the college, have planned its elimination in favor of another institution?

If we can have nothing left of our college but its name, let this at least represent old Rush in a worthy manner. Alumni! Demand that in the memory of glorious old Rush the name of the *entire* new medical school be: *Rush Medical College.* Be satisfied with nothing less!

It is very evident from a perusal of the articles in that last beautiful glazed paper number of the Bulletin mentioned, that their writers are trying to make themselves believe that the new medical school is to be an uplifted, purified and exalted Rush, but no ignoring of the facts can hide the obvious conclusion that the end of Rush is at hand, and that the new medical school is not Rush Medical College. *Sic transit gloria Collegii Rushiensis!* The alumni have been deprived of their birthright! Let those who doubt this read the Bulletin of the Alumni Association of Rush Medical College for January, 1917.

OBJECTIONS TO SOCIAL OR COMPULSORY HEALTH INSURANCE BY COMMITTEE ON HEALTH INSURANCE

OBJECTIONS TO COMPULSORY HEALTH INSURANCE.

The Bill.

Briefly, the bill and the plan of the American Association for Labor Legislation contemplates providing for all manual laborers and for all employes earning less than $100.00 per month, as follows:

In all cases of sickness and all disability from accidents not covered by Workmen's Compensation—

1. Cash benefits (two-thirds of wages) for 26 weeks only.
2. Medical service.
3. Surgical and nursing attendance.
4. Medical and surgical supplies.
5. Hospital service.
6. Cash benefits to dependants.
7. Funeral benefits.
8. Maternity benefits.
9. Dental work.
10. Medical treatment of dependants.

The cost is to be divided as follows:

40 per cent by the employer.

40 per cent by the employe.
20 per cent by the state.

Origin of the Bill.

Real or imaginary conditions in the U. S. have caused many welfare workers and social reformers to organize the American Association for Labor Legislation. The association evolved a theory of social betterment predicated upon conditions and social insurance systems in Europe.

Unsolicited and Objectionable to Those Most Interested.

While organized labor, the employer of labor, the taxpayer and the physician are the ones most vitally interested in Compulsory Health Insurance, it is interesting to know that all these interests are unequivocally opposed to it.

The demand for this legislation has not come from representatives of labor, whether organized or not, but chiefly from those who are not the representatives of wage-earners' interests. It is extremely significant that this movement, which primarly concerns wage-earners, and their dependants, should be strongly opposed by the American Federation of Labor.

We will show that the employer of labor, the taxpayer and the physician should oppose this measure.

Limited in Scope.

As yet the social reformer calls only for state-provided sickness insurance, in this tentative draft compiled by the American Association for Labor Legislation, while with equal arguments and authority he attempts to prove the necessity of invalidity insurance, old-age insurance and death insurance by state provision.

Premature.

No new health insurance legislation should be enacted before we rectify the unfairness of the present compensation law. State insurance for accident compensation should be tried out before we attempt to enact such laws.

Unnecessary.

In Illinois the theory of social insurance is not predicated upon necessity. The present system whereby the poor are treated by the most efficient medical men is far better than the 10-20-30-cent inefficient type of medical service furnished by physicians in communities where health insurance obtains.

The medical profession, while being most heartily in sympathy with real reforms, does not believe that the social and economic conditions that now prevail in our state would in any way be benefited by the adoption of health insurance legislation.

Poverty Not the Cause of Disease.

That poverty is the cause of sickness, and not sickness the cause of poverty, as many of our economists would lead us to believe, is not true. And the mere makeshift of paying a small indemnity in case of illness and broking the medical service, which would tend to do away with competition in the profession, aiding a certain class of physicians who would have no responsibility except to do quick work and connive with certain elements of the insured to the detriment of all concerned and in this way bring about the poorest kind of medical service, would only add to the condition of poverty by shifting the burden of paying a living wage and giving steady employment from the place where it belongs.

Prohibition a Factor.

Prohibition will be established in Illinois in the near future. This will do away, in a large measure, with the need, if any now exists, of health insurance, for the reason that after it is established people will have sufficient money with which to pay legitimate bills.

Unsatisfactory in Europe.

Health insurance is not working out satisfactorily in Germany.

In England it is charged with giving inefficient and unsatisfactory service to the insured.

Honorable Francis Neilson, ex-member of British Parliament, a student of political economy, speaking before the Chicago Medical Society December, 1916, said that social insurance in England is a dismal failure; that it was copied after the German system, and that Germany's system is a failure. He says that one has but to investigate all conditions to prove it.

Under the laws, the people are entitled to the best medical service that money can buy, but, in these countries they are getting the worst medical treatment in the world.

In France the weight of learned opinion is against compulsory insurance.

Will Extend Medical Charity Abuse.

While it is claimed by its advocates that it will solve the question of the abuse of medical charity, on the contrary, we will be jumping out of the frying-pan into the fire, for it will substitute a worse form of abuse than the one we are trying to rid ourselves of.

They claim that "under the proposed law all medical service to the insured will be paid for, including the unremunerated dispensary practice of today. This future 100 per cent collection is a delusion. The hard, cold facts of the situation are: The physician's charity list is made up of those who are not provided for in this bill.

There are too many of the unemployed, casually employed and self-employed, whose incomes are insufficient to permit them to carry the voluntary insurance the law provides, but whom the physicians must care for as charity patients. In fact, it is seldom that the regularly employed constitute the physician's free list.

In addition to these who constitute the present charity list will be added the 240,000, who, through physical unfitness or old age, will be driven to involuntary idleness through the operation of this bill.

Bill Not Comprehensive.

From a health insurance standpoint, the scheme is inadequate in that it successfully avoids giving med-

ical service excepting to the unusually healthy. You cannot choose the healthiest lives in a community and give them selected service on small pay and think that you are doing anything for the community, because a health insurance scheme must take in all lives, the sick as well as the healthy, and must give good service to all.

Bill Against Interests of Employers.

Selection of employes would cease to be based upon efficiency and value to the employer as at the present time, but upon the state of health and presumptive continuance of this good health. Conversely, when this state of robust health diminished in the employe, the employer would, as a matter of self protection, be forced to replace this man with a stronger one.

To determine this, a severe and searching examination is made by the company physician, and those who cannot pass an examination equal to a rigid life insurance examination are rejected.

Edkins, of Chicago, in a lecture on "The Selection of the Employe," says: The final question in the problem is, "Is he physically fit?"

As framed, the law would make no distinction between the physically sound and the cripple, maimed, physically weak wage earners, chronically afflicted, inebriate or venereally diseased, or those whose age would presume more frequent and more protracted illness. (Sec. 3.) Such provisions would cause the employer to set up physical standards as yet undreamed of, and must create a very large number of cast-offs, who virtually become non-wage-earning derelicts, but for whose support no provision is made in the proposed law.

Bill Against Interests of Employes.

How will it be when all employers must do the same, for it cannot be denied that the discarded class will come into existence concurrently with compulsory health insurance? That would present for Illinois the problem of how to provide employment or a living for the 8 per cent or 192,000 physically defective wage-earner discards. After those were provided for, it could do the same for the 2 per cent, or 48,000, perfectly good wage-earners 55 years of age or over who would be rejected by the carrier associations. The limit of acceptance by most carriers of Europe is 50 years while some make it 45 years.

Will Not Decrease Poverty.

The lot of the casual laborer would be greviously hard. It is axiomatic that the less a man earns per day the fewer days he works. Many cannot spare the amount necessary to pay the premiums continuously in order to receive the benefits. Therefore, those who are unable on account of general incompetence, previous illness or any other disabling condition, will be left outside the operation of this bill.

The proposed health insurance legislation does not make provision for the very poor, as such plans include the steady workers (a picked group), and not those who most need the insurance.

Moreover, the casual worker, the physical-defective and the wage-earner above the insurable age who at present are able to provide for their own needs by at least part-time work, would by this bill be forced into involuntary idleness and consequent poverty.

Professions' Income Affected.

The point is made by the advocates of health insurance that the income of panel physicians will be increased. That is true, but it will be the least efficient doctors who will make the most money and, from the standpoint of the people, the service will be much deteriorated.

Will Lower Professional Moral Tone.

Paying a physician a fixed salary per annum per family will mean perfunctory services. Paying a physician per call or per the nature of the service will mean superfluous calls and unnecessary services. Antitoxin may be injected in follicular tonsillitis; operations may be performed where none is really indicated. As long as there is a quantitative relation between services and compensation, superfluous services are inevitable.

The proposed draft leaves the way open for superfluous consultations. No matter how much less a consultant or surgeon will be paid under health insurance than at present, the competition for business will result in secret conniving between panel physicians and panel specialists.

The general practitioner will be at the mercy of the medical officer or cliques of doctors organized into hospitals, for, according to Sec. 13, "a patient may be ordered to a hospital by the fund or society or by its medical officer, without the consent of the attending physician. The medical officers may be prompted to this action as a result of being in league with certain hospitals or in consequence of hostility to certain physicians.

Furthermore, just as soon as compulsory health insurance becomes a fact, certain physicians will underbid the panel physicians, and with the insurance companies and funds to back them, will compel the commission by law to accept their bids.

It Will Decrease Professional Efficiency.

It will convert the practice of medicine into a vast kind of lodge practice (with all its evils), and is bound to result in incompetent medical service.

We believe that efficiency should be the standard of success. Under this system the doctor is going to do as little work as he can; this will mean that the physician will make two-minute calls instead of twenty-minute calls. To illustrate the inefficient character of the emergency panel service, note that in Austria a physician for an insurance society is allowed 48 hours (two days) in which to answer a call, and in England and other countries having health insurance the panel physicians refuse or evade making night calls.

It will hamper medical efficiency—in other words, the quality of medical service will degenerate under

this law. The physician who will lengthen the period of disability for the patient will be the most popular and financially successful; the physician of conscience and ability, refusing to conform to the professional and moral status of the unscrupulous, will be forced to penury or forced out of the profession of medicine.

Under the proposed scheme, the practice of medicine would become standardized in this country to an intolerable degree of inferiority, for the reason that the men of real medical ability would eventually be forced to the educational and social status of the mediocre panel-physician, which is unspeakable in Germany, where the law has been in operation for the longest time.

Destroy Incentive for Medical Research.

It would stop scientific progress in medical research as it has in Europe, by destroying the incentive for research and individual excellence. It world, therefore be undesirable to the public, by whom the effects of inefficient service would be most keenly felt. In other words, where medical progress is retarded, the physical welfare of the nation is jeopardized.

Make a Dissatisfied Profession.

Health insurance cannot exist without physicians. They are the essential cog in the machinery necessary for building up such an insurance system. Nor can such an insurance scheme obtain and maintain its greatest efficiency unless physicians are so satisfied as to allow the development of medical science.

A dissatisfied profession would be a poor help in time of war, especially if the skill of the profession should deteriorate as it has in Germany and England.

Productive of Malingering.

Health insurance would create much malingering; 60 per cent of all cases coming before the insurance commissions in Germany and England are disagreements based on malingering; likewise, a great per centage of cases before the industrial board in this state are for the determination of continued benefits upon this basis.

Destroy Personal Relationship Between Patient and Physician.

It would bring about compulsory medical attendance and do away with that personal and confidential relationship between doctor and patient, taking from the sick one that confidence, trust and friendship which is such an important factor in the proper treatment of disease. It is this element which makes the practice of medicine a profession and not a business. It is not wholly the dose of medicine that cures the patient, but success is frequently in a considerable measure due to the confidence the patient has in the family physician. This feeling of confidence, trust and personal relationship between doctor and patient so esesntial in promoting restoration to health should not and must not be disturbed by legislation.

Villard says: "One of the saddest things to note since the adoption of the German social insurance is the change in the relationship existing between doctors and their workingmen patients."

Would Not Improve the Public Health.

The alleged improvement in health would not materialize. It will not remove the cause of illness, nor will it reduce the number of cases or the average length of disability, and we have but to refer to existing records of similar schemes in Europe to prove this assertion.

In 1911 the German sickness societies spent more than twice as much as in 1901, although the number of members increased only one-third. In 1891, the number of cases of sickness per 100 insured was 35. In 1901, it was 38. In 1911, it was 43. And the average period of disability rose from 16 to 19 days, and during that period of 20 years Germany also spent one hundred and ten millions for hospitals and sanatoria.

Would Result in Class Distinction.

This bill would result in dividing the people into classes, as the first step in establishing social insurance is to divide people into two groups—those eligible for benefits and those considered capable of caring for themselves. The division is based upon wage-earning capacity. This governmental regulation would tend to fix the class-status of the citizens, even subclassifying the wage-earners, and a long established insurance system would tend to make these lines of class demarcation rigid.

On November 18, 1916, President Wilson, in addressing a delegation from the American Federation of Labor, warned them against class distinction. He said: "What I have tried to do is to get rid of any class division in this country. The worst thing that could happen to America would be that she should be divided into groups."

Subversive of Public Morals and Tends to Pauperize the Recipients.

The moral injury that will be done the beneficiaries of this misguided benevolence is past computation. It lessens the public ideals of truthfulness and honesty, destroys the spirit of personal independence and increases the moral trend toward pauperism.

Such a law would be a blow to individual pride and would result in the blunting or destruction of an element strong in the progress and achievement of the nation—American independence.

It substitutes coercion for voluntary thrift and would humiliate a very large class of wage earners who are not only willing but anxious to do for themselves.

It would pauperize 25 per cent of our people, and it is our belief that no one can become the recipient of public charity without a dulling of the finer sensibilities which a true system of education and government should endeavor to inculcate and foster.

We believe that social insurance, compulsory health insurance, welfare insurance, state-provided sickness

insurance, etc., by whatever name known, is but a form of "poor relief."

We believe in health insurance for the wage-earner, but we believe that he should pay for it, and that it should not be 40 per cent purchase and 60 per cent charity.

Unconducive to Ambition and Individual Effort.

The adoption of paternalistic health insurance will destroy in the citizen individual initiative and the incentive to thrift and industry. There will be no longer an incentive for the individual to employ the genius and talents with which he is endowed, to exercise his initiative, to forge ahead and better his own condition, stimulated by the thought that he is to enjoy to the fullest extent the reward of his own efforts.

If the state is to provide for them in sickness, protect them from misfortune and distress so long as the individual lives, what becomes of that inborn ambition lodged in the heart of every human being to rise above his fellows, and, if possible, succeed where others have failed?

Exploitation of Profession.

It is another scheme to exploit the profession by the community. Note the trend of professional exploitation for which the doctors are largely to blame.

According to the *Medical Economist* of New York, April, 1916, one-fifth of one per cent (the medical profession) does 95 per cent of the charity work; 50 per cent of the profession of New York City find it difficult to meet their current expenses, economize as they may (*N. Y. State Jour. of Med.*, Aug., 1915).

In Chicago, in 1907, an authentic survey showed that 25 per cent of the population received free medical treatment, while the average normal per cent of the population receiving charity other than medical was one-half of one per cent. The accuracy of this was vouched for by the Bureau of Charities and the Committee on Abuse of Medical Charity of the Chicago Medical Society. This abuse has increased by leaps and bounds during the past ten years.

The Chicago Bureau of Charities, 1907, is authority for the statement that in this city, having at that time a population of 2,000,000, the total amount of charity expended per year was $2,500,000. This includes the amount spent by the City, County and private organizations of every name and nature. Contrast this with reliable data presented at the time showing that the little band of physicians then numbering 3,000 were giving anually upwards of $7,000,000 to charity, or three times as much as all other agencies combined. This condition and its increase in the past ten years are due largely to the shortsightedness of the physicians themselves in promiscuously offering gratuituous service, which cheapens the one who offers as well as him who receives it, and to the disposition of health departments to encroach upon and enter into the practice of medicine.

The legitimate function of health departments is sanitation and disease prophylaxis and not the treatment of disease. The public charities of the state can and should care for the indigent sick; the treatment by them of special diseases is an unnecessary expense which pauperizes the community and prostitutes the profession.

The social service directory of the Public Welfare Commission of Chicago shows there are hundreds, if not thousands of hospitals, dispensaries, social centers, settlements, nurseries, religious and civic organizations and national societies, all giving free medical care at the expense of the physician. Without the free services of the doctor such institutions could not exist. Strange as it may seem to the lay person, the medical direction in such institutions is the only gratuitous service or commodity furnished.

Experiment at Expense of Medical Profession.

We feel that medicine should not be made to bear the brunt of this new experiment in paternalistic government, nor should we permit special legislation to socialize medicine before the public is ready to adopt a complete socialistic form of government.

Why should the profession be taken from the hands of the physician and a price be put upon his services when it is not the case in any other employment? In fact, the trades unions are making their own wage standard and the popular opinion is bearing them out in it.

A lay person should have the same right to expect state-provided legal services as he has to demand such medical treatment. If there were a bureau of justice established where, in criminal or civil cases, citizens were entitled to the best legal defense at the expense of the taxpayer, the legal profession would storm the halls of the legislature until such practice was declared illegal; but the long-suffering medical profession, from a habit of atavistic submission, meekly kneels down to receive any added burdens which official zeal or personal ambition sees fit to impose.

Labor Conditions in Illinois Do Not Require It.

Labor conditions in Illinois are not such as to call for state intervention in the personal affairs of the wage-earners. We have the blessings which come from an individualistic system, from a freedom of initiative and action, from a broad opportunity to work and to achieve. Shall we give up all these civic rights and depend upon the government, as an indulgent parent, to shoulder our burdens, rather than rely upon our own brains, our own strength, our own initiative, our own opportunity?

If the state is to coddle some wage earners and help them up the hill, why not clothe, feed and house them, and divide 60 per cent of the cost, as this charity health bill provides, 40 per cent to employer and 20 per cent to state? Why not go a step farther, to be consistent with the present bill, and establish farms to furnish produce, mines to furnish coal, mills and factories to furnish all wearing apparel at cost.

Care of the Sick Poor a Community Responsibility.

To those indigent sick who are unable to provide medical care for themselves or their dependents, it should be furnished and paid for by the state, not at the expense of the medical profession, but at the expense of the community at large. Medical charity should be administered the same as any other poor relief. It is detrimental to the morals of the community to administer it in any other way.

Plan an Economic Waste.

It will not effect an economic saving. We call attention to the fact that the promoters announce to the public a plan to save that enormous waste of time-value which we admit exists, and which they present in such startling figures, but after presenting the loss figures, the plan makes no pretense of saving more than a small portion, and that economy, by their own figures, will cost three times the value of the time saved. By these same figures, each beneficiary will pay into the fund more than he receives in cash benefits. Where is the economy? The cost will be three times the saving, and double the value of savings and benefits.

Prohibitive in Cost.

The cost of operation will be enormous, and, therefore, against the best interests of the taxpayer, the employer and the insured. It is a matter of record that the administration of such funds, as demonstrated by the Associated Charities and kindred organizations, costs over half the fund.

Under such a scheme as this compulsory health bill, the tax burden would increase tremendously. Let us see what this law would cost the state of Illinois.

At $24 per capita per year, which is the lowest estimate yet made, Illinois' annual bill for state-provided sickness insurance for its 2,400,000 workers of all kinds would be $57,600,000. Forty per cent of this, amounting to $23,040,000, would have to be paid by employers who would increase the cost of commodities, which means that in the end the public would have to pay the increased tax. $23,040,000 will have to be paid by the workers themselves and $11,520,000 will be paid out of the state treasury. This means an 83 per cent. increase, or nearly doubling of our present direct state tax.

This increase will be on the state tax alone, but it would not end there. The whole cost to every township, city, town, village and county must also be paid by increased taxes, and after the taxpayer has figured out just how much the whole tax amounts to, he can, if he is an employer, add on 40 per cent. for the cost of the insurance of his own employes. In Illinois the employer taxpayer will find the sum to be paid by them is approximately $40,000,000. Conditions in Illinois are not such as to warrant this huge expenditure.

Productive of Bureaucracy.

The legislation proposed in Illinois and other states calls attention to what would be the inevitable consequences of adopting this policy. As is evident from the proposed measure, it would build up a bureaucracy that would have some degree of control or authority over all of the workers of the state. It is in the nature of government that when even a slight degree of power is delegated, the natural tendency is to increase that power and authority so that the purposes of the law in question may be achieved more completely.

Dangerous Political Movement.

It will build up a great political organization which has a dangerous aspect. In the American Labor Legislation Review (pages 355-6) it states that if the state can handle this insurance, it will "afford rich opportunities for political favoritism and log-rolling." The opportunity for political organization is better comprehended by considering a few figures.

The city of Chicago has 33,000 employes who would come under the law, and that would mean 13 carrier associations employing 1,300 politicians to govern and administer the carriers' affairs; about half full-time, and the rest part-time or associate connections; all full-time employes to be paid 100 per cent. of wages and 60 per cent. of the cost of their compulsory health insurance by the city, while all part-time or specially affiliated would be in position to enjoy the "favoritism and log-rolling."

All cities in the state would establish similiar political unit carriers. Bear in mind that every hamlet, village, town, city, township and county must pay for its employes, and it isn't likely that such splendid opportunities for organization and employment of politicians would be overlooked, more especially because the taxpayer would have to pay for it all. The state also employes enough to establish a good many political carrier units.

The whole number of carriers of all kinds to care for the 2,400,000 wage-earners in Illinois, based on the German, French and English average of 2,500 wage-earners per carrier, would be 1,000 associations, and it is reasonable and conservative to estimate that at least 200 associations in Illinois would be politically organized, equipped and controlled. Two hundred associations would mean 20,000 full-pay or part-pay, or "log-rolling" political berths.

Commissioner Potts of Illinois said in substance in his introductory remarks at Richmond recently, "The political party in power at the time this form of insurance is assumed, might perpetuate itself."

Indefinite in Its Provisions.

The scheme as outlined is impractical and unfair, in that you could not bring more than a small portion of the wage-earners within its provisions.

It presents no element of security or solvency. (Sec. 42.) It insists upon compulsion, yet cannot compel. (Sec. 3.) It claims all described laborers and wage-earners, yet admits that many cannot be brought within. It proposes co-operative administration without state participation, yet it makes the whole

plan absolutely state-controlled, dominated and dictated, because no association can organize or make a move without the consent and approval of the state commission appointed by the governor. (Sec. 25, 26, 28, 37, 38, 41, 42.)

It contemplates that the real cost of operation shall not be known, as it provides that a very large part of the expense shall not be paid from the funds collected, but shall be paid through the general expense fund of the state.

(Sec. 46, 47.) It provides that wage-earners may insure outside the regular association organized under the law, but it provides penalties against the employers of such if they do.

(Sec. 39.) It recognizes probable insolvency of associations, yet makes no provision against same.

Un-American and Subversive of American Ideals of Democratic Government.

The entire agitation is artificial and ill-advised. It is a scheme of paternalistic government of the rankest kind and antagonistic to the spirit of American institutions and the ideals of our democratic form of government.

The American people are not willing to change from individualists to paternalists.

Compulsory sickness insurance for workers is based upon the theory that they are unable to look after their own interests, and the state must interpose its authority and wisdom and assume the relationship of parent and guardian. There is something in the very suggestion of their relationship and this policy that is repugnant to free-born citizens, because it is at variance with our concepts of voluntary institutions and individual freedom.

To compel a citizen, against his will, to enter into an insurance contract and impose upon him the burden of paying the premium, in whole or in part, is un-American and dangerous to civil liberty.

The adoption of compulsory health insurance would mark the beginning of a socialistic state, under which all rights of the individual are subordinated. The American people have not yet reached a point where they are willing to relinquish to the state or federal government the right to perform these new functions, which really have their origin in the monarchical governments of the old world.

Samuel Gompers said, at the hearing of the bill before the Congressional Committee:

First, let me call attention to the fact that these are not facts. They simply have their bases in a peculiar and speculative theory called by the possessors philosophy, but which might better be termed sophistry. From the viewpoint of the super-speculative theorists, when facts do not conform to the theory, it is so much worse for the facts. In other words, the Socialists, or the professoriat of the Socialist party, start out with the theory and then proceed to distort facts in order to try to prove it.

The whole scheme, the whole fault, the whole philosophy represented by Dr. Rubinow officially before this committee, and by Mr. London, as a representative of his political party, contemplate not individual development, not opportunity for initiative, for voluntary action, but regulation by the state. These people want to have laws enacted to make the other people conform to their concepts and recipes out of number.

May I say this, that Dr. Frederich Howe, who has written a book dealing with social insurance, in making contradistinctions as to the systems in vogue in the United States and Germany, makes this very significant remark: "Germany has so strengthened the state as to have devitalized the individual."

There is a difference as to concepts of forms of government—concepts of what is best as to the makeup of a people, the character of the people and the government which is established over them, or which they establish. I believe in that class of American citizens who believe in the vitality of the individual, in the vitality of the people as against a strong centralized government, a socialized government.

And this by Frederick L. Hoffman (ex-president American Statistical Association):

It is, therefore, decidedly to the interests of the American people that the propaganda for compulsory health insurance should be intelligently and persistently opposed as un-American because of the vicious class distinction, as uncalled for by the social or economic necessities of our wage-earning population, as needless because of our satisfactory health conditions, and as contrary to public policy because of the resulting discouragement of any and every form of voluntary thrift. To those who are responsible for this ill-advised propaganda it may well be said, in the words of the late Mr. Lecky, that "How few who share the prevailing tendency to deal with every evil that appears in society by coercive legislation adequately realize the danger of weakening the robust, self-reliant, resourceful habits on which the happiness of society so largely depends, and at the same time by multiplying the functions and therefore increasing the expenses of government, throwing new and crushing burdens on struggling industry!" and, in the words of the same learned student of social and economic forces making for human progress or decay, "Injudicious charities, or an extravagant and too indulgent poor-law administration, inevitably discourage industry and thrift, and usually increase the poverty they were intended to cure." Compulsory or coercive health insurance is no more and no less than a skillfully disguised form of poor relief, which is certain in the end to prove productive of a vast amount of harm to wage-earners and their dependents under the lure of the belief that their interests are being served in a direction in which voluntary effort is fully sufficient to achieve the end desired in due course of time.

In view of the above objections and as a protest against past or future encouragement of exploitation, socializing or paternalizing the medical profession of Illinois, the committee submits the following resolutions: Be it

Resolved, That the Committee on Health Insurance of the Chicago Medical Society hereby urge upon the physicians of this commonwealth, that they do not favor the enactment into law of any of the proposed health insurance measures, holding them unnecessary, undesirable and pernicious, and against the best interests of the people of the state of Illinois; and, be it further

Resolved, That this report be given as wide publicity as possible and a copy be furnished each member of the legislature.

Committee on Social or Health Insurance
of the Chicago Medical Society.

The committee on health insurance of the Illinois Medical Society concur in the above report.

EDWARD H. OCHSNER, W. E. FIEGENBAUM,
GEORGE APPELBACH, W. B. CHAPMAN,
C. A. HERCULES, *Secretary.*
S. V. BALDERSTON, CHAS. J. WHALEN,
J. R. BALLINGER, *President.*

WORKMEN'S COMPENSATION COMMISSION

Resolutions of the Council, Chicago Medical Society

Meeting of February 13, 1917

Dr. Thomas A. Hogan presented the following resolution:

Whereas, There is in the Executive Department of the U. S. Government a branch of the service known as the Workmen's Compensation Commission, the duties of said Commission are to administer the Federal Employes Liability Act; and,

Whereas, Probably 90 per cent of the work of the Commission will be medical in character; and,

Whereas, The President of the United States has nominated as members of said Commission the Reverend R. McMillan Little of Swarthborne, Pa., a preacher of the United Presbyterian Church; a Mrs. Axtell, of Bellingham, Wash., a social worker and a defeated candidate for Congress, and a J. J. Keegan, of Indianapolis, a member of the International Association of Machinists, formerly a member of the State Legislature; and,

Whereas, The first of these mentioned is stated to be a Republican, the second a Progressive, the third a Democrat; and,

Whereas, All rules of business logic would suggest that where ninety (90) per cent of the duties is medical in character that at least one member of the Commission should be a physician; therefore, be it

Resolved, That the Chicago Medical Society, the largest local medical society in the United States, through its Council, protests against this unfair discrimination against the medical profession, and while we realize that this condition was probably unintentional and unpremeditated, ask that the personnel of the Commission be altered or enlarged to include medical representation. Be it further

Resolved, That a copy of these resolutions be sent to President Wilson, and be it further

Resolved, That a copy be sent to the *Journal* of the American Medical Association and Illinois Medical Journal, with the request that the same be printed.

Moved and seconded that this resolution be adopted. Carried.

YOUR COUNTRY NEEDS YOU

Today the Government needs five hundred thoroughly qualified young men as medical officers in the United States Army and Navy. Enrollment now is a patriotic duty. The career is honorable and attractive and under present conditions promotion is rapid.

The requirements in essence follow:

Requirements for Army Medical Service

Applicants must be citizens of the United States, between 22 and 32 years of age.

Physical soundness: at least 5 feet, four inches in stature; weight 120 pounds.

Vision normal, or entirely corrected by glasses.

Satisfactory medical diploma.

Marriage no bar.

One year's hospital training.

Preliminary examination (similar to graduation examination and general average of 80 per cent required). Examinations for this section of the United States will be given at the office of Col. William C. Stephenson, M. C., U. S. A., Federal Building, Chicago. Final examination after four months' course at Army Medical School in Washington, D. C.

Five years' service guaranteed by applicant.

Requirements for Navy Medical Service

Requirements for the medical service of the Navy are the same as for the Army except that no internship is required and the candidate is not compelled to serve any prescribed time.

Examinations are held monthly at U. S. Naval Hospital, Great Lakes (North Chicago), Ill.

Advantages of Army Medical Service—Pay

$2,000 per year upon joining Army Medical School until captaincy after 5 years, then $2,640. Majority (last individual promoted after 8 years' service) from $3,600 to $4,000.

Lieutenant-Colonel and Colonel receive (after 30 years' service) $4,500 and $5,000, respectively; Surgeon-General $6,000.

Family of medical officer provided for by house or money allowance ($45 to $100 per month, according to rank).

Retirement at age of 64 years, on three-quarters' pay.

Allowance of half year's pay given estate in event of death.

Encouragement is given medical officers to develop themselves in research work, surgery, etc.

The National Defense Act of June 3, 1916, will largely increase the present number in each rank, now 21 Colonels, 36 Lieutenant-Colonels and 158 Majors.

Advantages of Navy Medical Service

Rank, allowances, retirement and opportunities for research in the Navy medical service correspond to those in the Army.

Illinois Committee on Medical Service for the United States Army and Navy

Headquarters Room 1123, 25 East Washington Street Chicago, Illinois

D. A. K. Steele, *President*
Arthur I. Kendall, *Sec'y*
L. L. McArthur
George E. Wynekin
William L. Noble
Ex-officio:
Franklin H. Martin
E. Wyllys Andrews
John M. Dodson
A. Augustus O'Neill
Joseph P. Cobb
Dean D. Lewis
Frederick A. Besley
Charles E. Kahlke
A. J. Ochsner
Alfred de Roulet
Richard H. Street
James F. Percy
Wilbur H. Gilmore.

For further information apply: (For Army) to Col. William Stephenson, M. C., U. S. A., Room 587, Federal Bldg., Chicago; (For Navy) to P. A. Surgeon Norman Sullivan, U. S. N., Great Lakes Naval Training Station, Great Lakes, Illinois, or to the Executive Officer of your medical school.

T. B. NOTES

Jerome E. Cook, investigating the results of pneumothorax in the treatment of pulmonary tuberculosis, came to the following conclusions:

1. The complications following artificial pneumothorax are so serious as to contraindicate the procedure in incipient or early favorable cases.

2. In moderately advanced cases or early progressive cases with unfavorable clinical symptoms, such as repeated hemoptysis, high fever, or excessive cough, the method may be tried. In a fair percentage of these cases, improvement will take place, and the patient will apparently be saved. However, protracted observation will materially reduce the number of those cases to whom the method seemed to offer a cure of their tuberculosis.

3. Artificial pneumothorax is not in any sense a cure for consumption. In carefully selected cases it may be productive of some good.—(Interstate Med. Jour., Jan., 1917.)

An infant, living in contact with an open case of pulmonary tuberculosis, practically always becomes infected.

Common Sense and Consumption.—A sanatorium superintendent says: "Doctors would make fewer errors in diagnosis if they depended more on symptoms, and placed less reliance on the physical signs that may be present. Physical signs without symptoms can usually be ignored. Symptoms, however, with or without physical signs, need careful study." In some cases we should make a positive diagnosis on the history and constitutional signs alone, without signs in the lungs. Such cases are not uncommon. Likewise, but rather less often, one can safely make a positive diagnosis on lung signs alone without marked constitutional disturbances. In the vast majority of cases there should be present both signs in the lungs, generally including rales at some time or other, and constitutional signs, such as fever, rapid pulse, subnormal temperature, loss of weight and strength. A hemorrhage, not including minute streaks or flecks of blood in the sputum, always means Tb. until the contrary is proven. This rarely happens. It need not always mean, however, that the patient should give up his work for a long time and go to a sanatorium. The X-ray gives confirmatory evidence which is rarely of great value in diagnosis when taken by itself. Tuberculin tests are of little value and may do harm. Observations of temperature and pulse are very valuable. The most important evidence, and probably the most neglected, is that obtained from a careful and detailed study of the patient, his family history, habits, surroundings and occupation. From the patient's point of view it is better to be safe than sorry, better to undergo a few weeks or months, perhaps, unnecessary treatment as a "lunger" than to linger along in false security until the chances of cure are gone.—*Common Sense and Consumption, J. B. Hawes, 2nd, Boston Med. and Surg. Journal, July 27, 1916.*

Initial Fever.—1. The tuberculin reaction is a specific reaction. When positive it signifies the presence of an active or latent tbc. focus. Normal individuals cannot be sensitized with tuberculin.

2. In infants tbc. infection always leads to tbc. disease, either mild or severe; in either case there is formation of tubercles, but while in infection the lesions are small, localized and tend to heal, in disease they are more extensive and more advanced. Tbc. infection in infants is invariably associated with fever and signs in the chest and abdomen. In adults tbc. infection may be present without fever or any other signs.

3. Fever is the first sign of tbc. infection in infants. It is sudden in onset, high for 7 to 14 days, remittent and gradually comes down by lysis to about 100, where it remains for about 12 to 20 weeks, with periods of exacerbations and normal temperature.

4. The tuberculin reaction becomes positive at the onset of the fever or a few days later.

5. 30 to 35 per cent of these children survive the infection, since the pathologic lesions may be localized and heal completely.

6. Fourteen per cent of prolonged febrile conditions in infants give a positive von Pirquet reaction. The test should therefore be carried out in every infant who has an idiopathic fever without physical signs.—*M. S. Reuben, Fever—The Initial Signs of Tuberculosis Infection in Infants. Archives of Pediatrics, Mar., 1916.*

RESULTS OF PHYSICIANS' EXAMINATION HELD BY THE ILLINOIS STATE BOARD IN CHICAGO.

Dr. C. St. Clair Drake, secretary, reports the results of physicians' examination held by the Illinois State Board of Health in Chicago, on October 10, 11, 12, 1916, as follows:

The total number of candidates, of whom 88 passed, 27 failed and 8 didn't complete the examination.

PASSED.

College—	Year Grad.	Total No. Passed
Bennett	1915 (1), 1916 (1)	2
Chicago Coll. M. & S.	1915 (3), 1916 (30)	33
Chicago Hosp. Coll. of Med.	1915 (1), 1916 (1)	2
Detroit Coll. of Med.	1904	1
Hahnemann, Chicago	1916	1
Howard Univ., Washington, D. C.	1914	1
Indiana University	1916	1
Jenner	1916	2
Johns Hopkins	1915	1
Loyola	1916	16
Medical College of Virginia	1906	1
Northwestern	1916	2
Rush	1903 (1), 1914 (1), 1916 (9)	11
St. Louis University	1914	1
University of Illinois	1916	6
University of Iowa	1907 (1), 1916 (1)	2
University of Michigan	1916	1
University of Pennsylvania	1903	1
Vanderbilt University	1916	1
		88

FAILED.

College—	Year of Grad.	Total No. Failed
Bennett Med. Coll.	1910 (1), 1915 (2), 1916 (3)	6
Chicago Coll. Med. & Surg.	1915 (1), 1916 (7)	8

Chicago Hosp. Coll. of Med.....1915 (2), 1916 (2)	4
Female Institute, Charcow.....1914	1
Hahnemann, Chicago 1915	1
Hospital, Louisville 1904	1
National Univ., St. Louis.....1916	1
National Univ. of Greece.....1905	1
Reliance Med. College.....1911	1
St. Louis Coll. P. & S.....1910	1
University of Athens.....1884	1
University of Pennsylvania.....1896	1
	27

MEDICAL SOCIETY OF THE MISSOURI VALLEY

Semi-Annual Meeting, Keokuk, Iowa, March 22, 23, 1917.

The meeting of the society at Keokuk, Iowa, March 22-23, promises to be of unusual interest, both in relation to scientific program as well as to the social features of the entertainment. All the members of the Tri-State Medical Society have been invited to attend and a number of them will take part in the program. The merger of the Tri-State Society with the Missouri Valley will be discussed and a large attendance is therefore anticipated.

PRELIMINARY PROGRAM.

"Pathological Changes in the Central Nervous System Due to Possible Infections from the Teeth and Tonsils," Dr. George W. Hall, Chicago.

"Magnesium Sulphate Poisoning," Dr. Ralph W. Webster, Chicago.

"Advantages of the Two-Stage Prostatectomy," Dr. Robert H. Herbst, Chicago.

"Hydrotherapy in the Sanitarium Treatment of the Nervous and Insane," Dr. Sidney Wilgus, Rockford, Ill.

"The Etiology and Treatment of Hemorrhoids," Dr. J. Rawson Pennington, Chicago.

"Diagnosis and Symptomatology of Hemorrhoids," Dr. Franklin A. Turner, Rockford.

"Sex Gland Implantation," Dr. G. Frank Lydston, Chicago.

"Recent Advances in the Surgery of Gall-Stone Disease," Dr. Daniel N. Eisendrath, Chicago.

"Ethics in the Practice of Surgery," Dr. Charles H. Parkes, Chicago.

"Perthe's Disease," Dr. C. B. Francisco, Kansas City.

"Fibroid Tumors and Their Fatal Complications," Dr. Herman E. Pearse, Kansas City.

"First Aid to Spinal Injuries," Dr. Carl E. Black, Jacksonville, Ill.

Lantern Slide Lecture on "Cleft Palate and Harelip," Dr. Wm. L. Shearer, Omaha, Nebr.

"The Percy Cautery in Inoperable Carcinoma of the Cervix," Dr. Caryl A. Potter, St. Joseph.

"Tobacco and Abdominal Pain," Dr. L. W. Littig, Davenport, Iowa.

"Pathology of Traumatic Wounds," Dr. O. C. Morrison, Carroll, Iowa.

"The Pelvic Fasciae," Dr. C. H. Magee, Burlington, Iowa.

"Treatment of Acute Perforating Gastric and Duodenal Ulcers," Dr. L. A. Dermody, Omaha.

"Acute Endocarditis," Dr. M. W. Flothow, Woodbine, Iowa.

"Why Cesarean Section?" Dr. A. B. Somers, Omaha.

"Abnormalitis of the Heart as Demonstrated by Roentgenoscopy," Dr. John W. Shuman, Sioux City, Iowa.

"Late Results of Operation in Hip Joint Disease," Dr. H. Winnett Orr, Lincoln, Nebr.

"Abdominal Pain in Early Childhood," Dr. Newell Jones, Omaha.

Subject to be announced later, Dr. Julius Frischer, Kansas City.

Public Health

CONFERENCES ON INFANTILE PARALYSIS.

The latter part of January, the State Board of Health began a series of clinical conferences on infantile paralysis in about thirty of the cities of the state, these cities being chosen in view of their relation to the foci of this disease as it appeared in 1916.

The County Medical Societies, with negligible exceptions, are co-operating very earnestly in these conferences, as are also the local health authorities.

The emphasis of the clinical work has been to show how deformities may be prevented and function restored as far as possible. The possibilities and technique of neuro-muscular re-education as applied to these cases have been especially illustrated.

A public address with lantern slide illustrations has been given in each center, and other addresses on various phases of poliomyelitis have almost uniformly been desired by the local profession.

The public meetings have called out representative people, and in most instances large audiences have been present. Up to date about 200 patients have been seen, and we estimate that about one-half the territory has been covered, *i. e.*, the southern part of the state.

We believe it to be easily possible for the local profession to receive a stimulus and a direction which will enable it to successfully cope with the after effects of this malady, and to see to it also that those needing special orthopedic help shall be directed to proper sources.

The value of this work to preventive medicine

cannot be lightly estimated. Hope to the people in general also follows, and intelligence to which they are assisted will make for their successful co-operation in this and other public health matters.

Conferences so far have been held at Atwood, Tuscola, Decatur, Mattoon, Olney, Harrisburg, Cairo, Benton, East St. Louis, Quincy, Springfield, Galesburg, Kewanee, La Salle, Ottawa, Streator.

Those remaining are Joliet, Chicago, Rock Island, Freeport, Oregon, Elgin, Aurora, Kankakee, Bloomington, Champaign, Peoria.

Poliomyelitis clinical conferences will be conducted by the State Board of Health during the month of March at the following points:

Streator—March 3-6.
Joliet—March 7.
Chicago (for cases outside Chicago)—March 8-13.
Waukegan—March 12.
Rock Island—March 14-15.
Freeport—March 16.
Oregon—March 17.
Rockford—March 19.
Elgin—March 20-21.
Aurora—March 22-23.
Kankakee—March 24.
Champaign—March 26-27.
Bloomington—March 28-29.
Peoria—March 30-31.

NOTES ON LEGISLATION AFFECTING HEALTH ACTIVITIES IN THE STATE OF ILLINOIS.

Of most absorbing interest in the legislature within the past few weeks has been the so-called Consolidation Bill. This administration bill places in nine main departments all of the executive administration functions of the state with the exception of the State University. At the head of each major department is to be a director who will be in executive charge of the department, and who will act as an advisor to the governor. The arrangement is similar to the federal cabinet.

To those interested in public health it will be gratifying to learn that one of these major departments is the State Department of Public Health, with a director at its head and an advisory board to assist in determining matters of general policy. The department is truly a department of public health and will be unencumbered by other functions that do not have a strictly public health bearing. A notable change over the organization of the old State Board of Health is the separation from the health activities of the state of the administration of the medical practice act, which, together with a number of other examining bodies, has been placed in the Department of Registration and Education.

No changes of importance have been made in the health laws of the state. The bill provides that existing laws governing the old State Board of Health are to be placed under, and administered by the State Department of Public Health. There has been a gain, in that certain functions which the board has hitherto performed, but for which it had only general authorization, are now specifically mentioned. Under this head is included the authority to render advice in connection with public water supplies, water purification works, sewerage and sewage treatment works, and, to have supervisory powers over the operation of water works and sewerage works. It would have been desirable to have supervision over the installation of these works, but it is believed that by virtue of its authority over operation, the advice and approval of the State Department of Public Health will be sought in connection with new installations.

There is a bill now pending introduced by the Master Plumbers' Association of Illinois looking toward a more rigid application of the state plumbing laws. This bill does not modify existing law, except in the matter of its enforcement. Hitherto there has been no state agency that could look after the enforcement of the plumbing law. The new bill proposes the appointment of a state supervisor of plumbing, whose duty it shall be to see that plumbing codes are enforced, that plumbers' examination boards are properly established as required, and that plumbing examinations are properly conducted. In addition to this, the law provides that local plumbing codes must be adopted only with the advice of the State Department of Public Health. This item imposes new and additional duties on the State Department of Public Health which it will have to meet by securing a sufficient appropriation (estimated at about $4,000 per annum) for the employment of a plumbing expert, together with necessary stenographic assistance, traveling expenses, office furniture and supplies.

The Bureau of Sanitation, which includes the engineering activities of the State Department of Health, is asking for approximately $60,000

per annum, in order to properly perform various duties that must be undertaken if the regulation of sanitation and public health in Illinois is to be at all effective and in conformity with practice obtaining in other states. This bureau includes abong its activities, supervision over public water supplies and sewerage systems; the prevention of stream pollution; inspection of schools and other public buildings; examination of plans for county tuberculosis hospitals; municipal and rural sanitary surveys; regulation of sanitation on interstate carriers and in work camps; studies of methods for collecting and disposing of city wastes; studies of methods of street cleaning; maintenance of chemical and biological laboratories for the examination of water, sewage and wastes; studies of methods of heating and ventilating; preparation of plumbing codes and investigation of plumbing methods and material, and conduct of publicity work, including public addresses, exhibits and surveys.

Included with the appropriations is a sum to cover the purchase and operation of a railroad car to be used in connection with sanitary surveys, especially in rural districts. This car will be provided with office room, living quarters, laboratory and exhibit space. Such a car will not only prove an effective means for interesting the public in health conservation and the work of the State Department of Public Health, but will also greatly facilitate and expedite the work of making sanitary surveys for which at the present time there is a great demand throughout the state.

From the foregoing statement of the work which the State Department of Health intends to undertake, it will be obvious that the appropriation requested for sanitary work is a modest one, and in point of fact every item was carefully considered and not a dollar has been requested that does not seem absolutely necessary for obtaining tangible results.

MEDICAL INTERESTS AMPLY CONSERVED IN THE CONSOLIDATION BILL

State Department of Health and the Department of Registration and Education to Take Over Work Formerly Performed by the State Board of Health

The consolidation of the state governmental agencies will become a fact on July 1, 1917. The new "State Administrative Code" has passed the House and the Senate with but two dissenting votes. When the Governor attaches his signature to the bill, it becomes a law.

No greater piece of fine constructive legislation has been achieved in Illinois in many decades. The keenest observers who have studied the measure are united in the opinion that this piece of legislation will accomplish for the people in the way of greater efficiency in government all that its most earnest advocate has promised. The credit for this achievement belongs to Governor Frank O. Lowden, who, against great odds and contrary to the prophesies and to the wishes of some politicians who always have been regarded as astute and powerful factors in legislative circles, has carried the chief of his campaign promises to a successful and early conclusion.

Certain it is that the medical profession has reason to rejoice in the new order of things. The recognition accorded the State Board of Health, the body most representative of the medical profession in the state government, has been such as to leave no doubt of the estimate placed upon important services of that body. The State Board of Health is but one of more than one hundred separate state agencies which have been consolidated in ten major departments, yet out of the ten departments it gets one major department wholly—the Department of Public Health—and it becomes the major factor in another department—the Department of Registration and Education.

Elsewhere in this issue the new Department of Health has been discussed. Here we shall briefly outline the rights, powers and duties of the new Department of Registration and Education.

Let us quote from the provisions of the Consolidation bill as follows:

The Department of Registration and Education, officered by a Director of Registration and Education, salary $5,000 per annum; an Assistant Director, salary $3,600 per annum; a Superintendent of Registration, salary $4,000 per annum.

Neither the director, assistant director, superintendent of registration nor any other executive and administrative officer in the department of registration and education shall be affiliated with any college or school of medicine, pharmacy, dentistry, nursing, optometry, embalming, barbering, veterinary medicine and surgery, architecture or structural engineering, either as teacher, officer or stockholder, nor shall he hold a license or certificate to exercise or practice any of the professions, trades or occupations regulated.

The Department of Registration shall have power to exercise the rights, powers and duties vested by law in the State Board of Education; the boards of trustees of four state normal schools; the Board of Veterinary Examiners; Board of Horseshoers; Board of Examiners of Architects; Board of Examiners of Structural Engineers; State Board of Health relating to the practice of medicine or any of its branches; State Board of Health relating to the regulation of embalming and licensing of embalmers; State Board of Pharmacy; State Board of Dental Examiners; State Board of Nurses Examiners; State Board of Optom-

etry; State Board of Barbers Examiners; State Geological Survey; State Water Survey; State Museums, State Entomologist.

The Department of Registration and Education shall, whenever the several laws regulating professions, trades and occupations which are devolved upon the department for administration so require, exercise, in its name, but subject to the provisions of this act, the following powers:

1. Conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade or occupation for which an examination is held; and pass upon the qualifications of applicants for reciprocal licenses, certificates and authorities;

2. Prescribe rules and regulations for a fair and wholly impartial method of examination of candidates to exercise the respective professions, trades or occupations;

3. Prescribe rules and regulations defining, for the respective professions, trades and occupations, what shall constitute a school, college or university, or department of a university, or other institutions, reputable and in good standing and to determine the reputability and standing of a school, college or university, or department of a university, or other institution, reputable and in good standing by reference to a compliance with such rules and regulations;

4. Adopt rules providing and establishing a uniform and reasonable standard of maintenance, instruction and training to be observed by all schools for nurses which are to be deemed reputable and in good standing and to determine the reputability and good standing of such schools for nurses by reference to compliance with such rules and regulations;

5. Establish a standard of preliminary education deemed requisite to admission to a school, college, or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities;

6. Conduct hearings on proceedings to revoke or refuse renewal of licenses, certificates or authorities of persons exercising the respective professions, trades or occupations, and to revoke or refuse to renew such licenses, certificates or authorities;

7. Formulate rules and regulations when required in any act to be administered.

None of the above enumerated functions and duties shall be exercised by the department of regustration and education, *except upon the action and report in writing of persons designated from time to time by the director of registration and education to take such action and to make such report, for the respective professions, trades and occupations as follows:*

For the veterinary practitioners, three competent veterinary surgeons, not more than two of whom shall be graduates of the same veterinary college, and neither of whom shall be connected with any veterinary college in any capacity;

For horseshoers, five persons, consisting of three practical master horseshoers, who have been for at least three years prior to their designation engaged in the occupation of horseshoeing in this State, and two journeymen horseshoers, who have been for at least three years prior to their designation engaged in the occupation of horseshoeing as journeymen horseshoers in this State;

For the architects, five persons, one of whom shall be a member of the faculty of the University of Illinois, and the other four of whom shall be architects residing in this State, who have been engaged in the practice of architecture at least ten years;

For the structural engineers, five persons, one of whom shall be a professor in the civil engineering department of the University of Illinois, and the others of whom shall be structural engineers of recognized standing, who have had not less than ten years' practical experience, then practicing as structural engineers in this State;

For the medical practitioners, embalmers and midwives, five persons, all of whom shall be reputable physicians licensed to practice medicine and surgery in this State, no one of whom shall be an officer, trustee, instructor or stockholder or otherwise interested, directly or indirectly, in any medical college or medical institution. For the purpose of preparing questions and rating papers on practice peculiar to any school, graduates of which may be candidates for registration or license, the director may designate additional examiners whenever occasion may require;

For the pharmacists, five persons, each of whom shall be a competent registered pharmacist, in the State, and shall have had ten years' practical experience in the dispensing of physicians' prescriptions since such registration;

For the dentists, five persons, each of whom has been a licensed practitioner of dentistry or dental surgery in this State for a period of five years or more, and no one of whom is in any way connected with or interested in any dental college or dental department of any institution of learning;

For the registered nurses, five persons, each of whom is a registered nurse in this State and has been graduated for at least a period of five years from a school for nurses in good standing, and, during the course of training, has served for two years in a general hospital, and three of whom shall have had at least two years' experience in educational work among nurses;

For the optometrists, five persons from among such practicing optometrists of the State as have had not less than five years' practical experience in optometry, no one of whom is a member of any optical school or college or instructor in optometry or person connected in any way therewith, or is a manufacturer, jobber or jobbing representative;

For the barbers, three practical barbers, each of whom has been for at least five years preceding his designation engaged in the occupation of barbering in this State.

The action or report in writing of a majority of the persons designated for any given trade, occupation or profession, shall be sufficient authority upon which the director of registration and education may act.

In making the designation of persons to act for the several professions, trades and occupations, the director shall give due consideration to recommendations by members of the respective professions, trades and occupations and by organizations therein.

Whenever the director is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate or authority, he may order re-examinations or rehearings by the same or other examiners.

Sec. 61. All certificates, licenses and authorities shall be issued by the department of registration and education, in the name of such department, with the seal thereof attached.

Sec. 62. Unless otherwise provided by law, the functions and duties formerly exercised by the State entomologist, the State laboratory of natural history, the State water survey, and the State geological survey and vested by this Act in the department of registration and education, shall continue to be exercised at the University of Illinois in buildings and places provided by the trustees thereof.

Sec. 63. The board of natural resources and conservation advisors shall advise the director of registration and education in all matters pertaining to natural history, geology, waters and water resources, forestry and allied research, investigational and scientific work.

The board of State museum advisors shall advise the director of education and registration in all matters pertaining to maintenance, extension and usefulness of the State museum.

CONTAGIOUS DISEASE SITUATION IN ILLINOIS

Summary for February

During the month of February smallpox appeared in a number of communities throughout the state, the outbreaks being difficult to control in a number of instances, owing to the prevailing mild type of the disease. The communities in which the disease appeared difficult to control were Crouch township, Hamilton county, where it had existed for some time unrecognized, and in the mining communities of Bulpit

and Kincaid, Christian county. The board took charge of the situation at these places with the epidemiologist directing the work of suppression of the outbreak, assisted by quarantine officers. The local authorities and the officials of the miners' union extended full co-operation.

Diphtheria.—The disease, as in past winters, existed in many communities, no outbreak of any considerable note, however, appearing anywhere in the state. As much antitoxin, however, was used in the month as during any month during the last half-dozen previous years. In this connection it may be noted that the board is now supplying antitoxin in 10,000 unit packages.

Scarlet Fever.—Outbreaks of scarlet fever in various parts of the state were somewhat difficult to control owing to the mildness of many of the cases and the consequent inability of the quarantined families to understand why the full minimum period of quarantine should be enforced. Some 35 or 40 cases of the disease appeared in Carlinville, many among the school children. All public meetings were prohibited and a nurse was engaged especially to examine the school children. The aid of this board was extended to the city authorities by placing quarantine officer in charge of the enforcement of quarantine regulations and of the order confining children under 16 years of age to their own premises. The vigorous efforts of the city, state and school authorities resulted in the prompt suppression of the outbreak.

Typhoid Fever.—The only communities in which a large number of cases of the disease developed during the month were Waukegan and North Chicago, where there are some 80 cases. An investigation by the Sanitary Engineering Bureau and the State Epidemiologist is now in progress. The public water supply appears to be the source of the trouble.

Measles.—The disease appeared in epidemic form in many communities in the state. Outbreaks were difficult to control owing to the fact that the general public does not as yet fully realize the necessity for the strict enforcement of quarantine regulations.

Whooping Cough.—The disease did not appear as prevalent as at this time last year, although some cases were reported in a number of communities.

Chickenpox.—The disease appeared in a number of communities but nowhere in epidemic form.

Cerebrospinal Meningitis.—Exceedingly few cases were reported, no more than one in any community with the exception of Chicago.

Acute Poliomyelitis.—But 9 cases of the disease were reported during the month, of which 2 were in the city of Chicago.

PENDING LEGISLATION OF INTEREST TO PHYSICIANS

At the present time there are a number of bills pending in the sitting Illinois General Assembly which are of peculiar interest to physicians. The following summary of the pending legislation should be carefully read by members of the medical profession and upon measures in which the profession is interested each and every physician should offer an expression of opinion to his representatives and senator, either in support of a commendable piece of legislation or in opposition to a bill the provisions of which are deemed unfair or unwise.

The medical profession never will be given serious consideration in legislative circles until it evidences a deeper and a more intelligent interest in legislative matters. Keep in touch with your representatives in the General Assembly and remember that the best way to develop influence with a legislator is by not forgetting to offer words of commendation when such are due. Don't dissipate your influence by reserving action for those measures which you wish to see opposed.

MEDICINE

Osteopathy.—House Bill 266, introduced February 7 by Rep. Guy Guernsey of Chicago. Now in House Judiciary Committee. Hearing, March 13. Amends medical practice act in manner which gives osteopaths right to practice medicine and surgery in all their branches, but fails to require educational standards equal to those required of physicians and surgeons. Also provides that certain osteopaths now holding "Other Practitioner's" certificates may acquire this right simply on surrender of their "O. P." certificate and payment of transfer fee of five dollars.

This is a very bad bill and if its supporters insist upon pushing it, steps must be taken to defeat it.

Conferences have been held with representatives of the state osteopathic association and it has been agreed that a new bill shall be drafted and substituted for the bill previously introduced. The new bill will provide for equal educational standards for all practitioners of the healing art. Any bill short of this requirement should be universally and vigorously opposed by the medical profession.

Optometry.—House Bill 366, introduced by Rep. Roderick of Chicago. Referred to House Committee on Judiciary. Amends the optometry act with respect to reciprocity with other states in optometry licensure. Provides that it shall be unlawful for anyone to falsely assume title "registered optometrist" or any other title or degree or to represent himself to be a registered optometrist for the purpose of testing and examining eyes and recommending glasses therefor; also that it shall be unlawful for any registered optometrist to advertise on or practice his profession in any name other than his own or fraudulently to advertise or represent the qualities of eye glasses.

Proponents of this amendment are actively lobbying for its passage.

Prescriptions.—House Bill 300, introduced by Rep. Frisch of Springfield. Referred to Committee on Judiciary. Amends Pharmacy Act by providing that it shall be unlawful for any person to counterfeit or forge the name of a licensed physician, dentist or veterinarian to a prescription or order.

Chiropody.—House Bill 226, introduced by Rep. Igoe of Chicago. Referred to House Committee on License and Miscellany. Reported out with agreed amendments and is now on second reading in the House.

Will require further amendments placing authority for administration in Department of Registration and Education rather than in State Board of Health, as bill now reads. Also Senate Bill 135, introduced by Senator Barr of Joliet. Referred to Senate Committee on Judiciary. Reported out with agreed amendments. (Same bill as introduced in House.)

Provides for examination and licensing of chiropodists by State Board of Health under such rules and regulations as the board may determine. Defines chiropody as "the local medical, mechanical or surgical treatment of ailments of the human foot, except the correction of deformities or injuries through the use of the knife, amputation of the foot or toes, or the treatment of injuries of the human foot, or the use of anesthetics other than local, or the use of drugs or medicines other than local antiseptics."

On or after July 1, 1917, all persons practicing chiropody in Illinois must be licensed. Physicians are exempted from provisions of the act.

This bill is being vigorously pushed by its supporters.

Poisons.—Senate Bill 81, introduced by Senator Austin. Now on passage in Senate. Amends the law in relation to criminal jurisprudence, requiring druggists to label with word "poison" each phial or parcel containing bichloride of mercury, which container shall be triangular in shape. Penalty, $50 fine for each sale not so labeled.

Also House Bill 139, introduced by Rep. Thon of Oak Park. Referred to Committee on License and Miscellany. Regulates the manufacture, sale or other disposal of poisonous fly paper or poisonous fly killer and provides penalties.

HEALTH

Public Health Districts.—Senate Bill 28, introduced by Senator Coleman, and House Bill 318, introduced by Rep. Scanlan. Similar bills, both now in Committee. Provides for consolidation of municipalities and townships for purpose of organizing and maintaining an efficient health service. Special tax not to exceed four mills on the dollar, annually, may be levied to create "Public Health Fund." Subject to referendum.

The aims and purposes of this bill are commendable but the bill has been very poorly drawn and must be re-drafted. A substitute bill in proper form will be offered at an early date.

Health Certificates for Marriage.—Senate Bill 151, introduced by Senator Austin. Provided that before marriage license could be issued, both parties must file an affidavit showing that they are not afflicted with any communicable venereal disease, together with certificate, signed and sworn to by physician, that such parties have been personally examined by him within 15 days and that he believes and has found the applicants to be in good health. Penalty, $100 to $1,000, or imprisonment, or both.

This bill was overwhelmingly defeated in the Senate. A similar measure is pending in the House, but, in view of the character of the amendments tacked on to it in committee, it is sure to meet defeat when it comes up for consideration.

One of these amendments provides that both applicants for a marriage license "must be free from any venereal disease, scrofula, tuberculosis, Bright's disease, diabetes or any other contagious or communicable diseases."

Extending Postal Franking Privilege to Reports of Contagious Diseases, Births and Public Health Literature.—Senate Joint Resolution 5, introduced by Senator Cornwell on request of State Board of Health. A memorial to the Congress of the United States to authorize the franking of all reports of births, deaths and communicable diseases to the proper officer and all printed matter of an educational character issued by the State Board of Health to the people of the state in which such matter is issued.

Similar resolutions have been introduced in all other states where general assembly is now sitting.

This resolution has been referred to the Senate Committee on Public Health, Hygiene and Sanitation, of which Senator (Doctor) Latham is chairman. Senator Latham should be asked to advance it.

Vital Statistics.—Senate Bill 218, introduced by Senator Buck of Monmouth, and House Bill 361, introduced by Rep. Perkins of Lincoln. Amends act requiring reports of births and deaths by providing that one complete set of records shall be turned over to the county clerks of the respective counties within 10 days after the close of each month, instead of at close of year as at present.

Cold Storage Regulation.—Senate Bill 4 and House Bill 223, introduced by Senator Baldwin and Rep. Hicks. Both bills still in Committees.

Regulates cold storage articles of food by requiring that every person or firm operating a cold storage warehouse shall procure from the State Food Commissioner a license for that purpose. Every licensee shall keep records of the articles of food received in and withdrawn from his cold storage warehouse and shall submit an itemized monthly report to the State Food Commissioner. The State Food Commissioner shall have access to all such warehouses at reasonable times for the purpose of inspection and supervision and may revoke the license of any warehouse which is found to be in an insanitary condition.

Defines the term "cold storage" and "articles of food." Requires that every article of food shall be stamped with the dates when received and removed from cold storage and that any article which has been held for a period of thirty days or over shall be conspicuously marked "cold storage goods." Authorizes the State Food Commissioner to make all necessary rules and regulations to carry this Act into effect and provide penalties for violation thereof.

HOSPITALS

Hospitals Brought Under Operation of Eight-Hour Law.—Senate Bill 90, introduced by Senator Curtis and referred to Senate Committee on Labor, Mines and Mining; also similar measure, House Bill 126, introduced by Rep. Carter and referred to Committee on Industrial Affairs.

Amends sections 1, 2, 3, 4 and 5 of "An Act to regulate and limit the hours of employment of females in any mechanical or mercantile establishment, or factory, or laundry, hotel or restaurant, or telegraph or telephone establishment or office thereof, or in any place of amusement, or by any express or transportation or public utility business, or by any common carrier, or any public institution, incorporated or unincor-

porated, in this State, in order to safeguard the health of such employees, to provide for its enforcement and a penalty for its violation," in force July 1, 1909, and adds five new sections.

The law, as it now stands, provides that females in certain establishments shall not work more than ten hours in any one day. The bill provides that they shall not work more than eight hours during any one day, or more than forty-eight hours in any week. It adds hospitals to the establishments enumerated and provides that its regulations shall not apply to graduate nurses or nurses assigned to services in operating rooms in hospitals. It provides more stringent rules for the enforcement of the act, and greater penalties for its violation.

House Committee now holding public hearings with representatives of all affected employments lodging vigorous protests. Bill being strongly pushed by its proponents.

New State Hospitals.—Senate Bill 101, introduced by Senator Hughes, provides for the establishment of a surgical hospital for crippled children to be operated in conjunction with the Illinois Charitable Eye and Ear Infirmary at Chicago. Senate Bill 102 provides for an appropriation of $452,500 for the establishment and maintenance of this hospital. Both bills still in committee.

House Bill 379, introduced by Rep. Burns, provides for the establishment of a State Psychopathic Hospital.

House Bill 380, introduced by Rep. Burns, provides for the establishment of a home for feeble minded.

The two last-named bills are in the House Committee on Appropriations.

Correspondence

A COMPREHENSIVE PATHOLOGICAL AND RESEARCH LABORATORY FOR COOK COUNTY HOSPITAL.*

J. Rawson Pennington, M. D.,
CHICAGO.

To the Honorable,
The Board of Commissioners
of Cook County.

Gentlemen: On behalf of the medical profession of Cook county, I want to thank you for the courtesies which you have so graciously extended us this afternoon.

At a meeting of Chicago Medical Society last Wednesday evening, January 17, the following resolution was unanimously adopted:

Resolved, That a committee be appointed for the purpose (1) of conferring with the president and members of the Board of Commissioners of Cook County concerning ways and means for constructing and equipping a comprehensive pathological and research laboratory or laboratories for Cook County Hospital, and to urge upon them the necessity of early action. (2) For the purpose of finding ways and means to arouse enthusiastic interest among members of the profession and the public concerning the great importance and the necessity of these laboratories.

This resolution speaks for itself. The purpose of our appearing before you this afternoon is to ask you, the president, and the members of the Board of Commissioners of Cook county, to request the public to lend a helping hand in building the necessary laboratories for Cook county hospital.

It is obvious that there is a great and urgent need for a new pathological and research laboratory in Cook county hospital. While this is one of the largest hospitals in the world, and she is overfull of patients practically all of the time, yet her morgue and laboratory are hardly worthy the name. What does this mean? It means that a vast amount of rare and invaluable pathological material is literally going to waste simply for the want of a building in which to preserve, for study and use, these rare and invaluable specimens—a condition almost unbelievable. Who are the losers? You and I; in fact, the whole world.

The great medical question today is not that of curative medicine, but preventive medicine. To study and learn preventive medicine an up-to-date pathological and research laboratory is not only essential, but absolutely necessary. Moreover, curative medicine is the commercial side of medicine, while preventive medicine is the altruistic side. We, as doctors, because of necessity in many instances, doubtless, have been more interested in the commercial or egoistic phase of medicine, than we have been in the altruistic phase. As evidence of this fact, we see hospitals and colleges everywhere for curative medicine, but how many institutions can you point out that have been erected for preventive medicine? Yet, this subdivision of medicine unquestionably concerns mankind most. Had a larger percentage of these institutions been erected and equipped for the study of preventive medicine, and placed under the supervision of competent directors, doubtless, today there would be thousands of human beings living and enjoying life who are now either chronic invalids or in their graves. And, mark you, when the public fully realizes this, it will not be necessary to request it to lend a helping hand in building these institutions; it will demand their building at once, and insist that a competent director be placed in charge. Furthermore, that the doors be thrown wide open to every physician in Cook county

*A plea delivered before the Board of Commissioners of Cook County, at the County Building, Chicago, January 24, 1917.

gratis, and he will be urged to take advantage of the opportunities offered therein.

In my opinion, Cook county should have an unexcelled laboratory or laboratories for the following reasons:

1. Chicago, the county seat of Cook county, is the center of population of the United States.

2. There are more people within a radius of 500 miles from Chicago than any other point in the United States.

3. Chicago is the center of the greatest agricultural country in the world.

4. Chicago's growth is the marvel of the world.

Moreover, recently millions of dollars have been given for medical education in Chicago by outsiders. Why given to Chicago? (1) Because the donors unquestionably desire to place their money where it will yield the greatest medical good for mankind. (2) Because they see in the clinical and other advantages, and in the medical timber in Chicago, the greatest medical possibilities in America. And, I might say in this connection, that a few years ago a well-known eastern surgeon said, "Chicago, because of her clinical advantages and the intelligence and enthusiasm of her physicians, is destined to be the medical center of medical education in this country, if not of the whole world." The following are some of the evidences of the keen foresight and mature judgment of this eminent surgeon.

1. Chicago is the home of modern intestinal surgery.

2. Chicago has extended and popularized that great question "focal infection" in medicine.

3. Last, but not least, the indications are that Chicago is the home of the serum, and probably the micro-organism of that dreaded disease—infantile paralysis.

In conclusion, I beg to state that if the foregoing prophecy is to be realized, it is imperative that we have an adequately equipped pathological and research laboratory in Cook county hospital.

Therefore, in view of the foregoing and for many other reasons, and on behalf of the medical profession of Cook county, I trust you gentlemen will see your way clear, and will use your best efforts in securing for our county hospital a comprehensive pathological and research laboratory.

PYELITIS TREATED SUCCESSFULLY WITH SILVOL.

(Continued from page 188)

On June 14 the renal pelvis received a 5 per cent. Silvol irrigation. Repeated on the 17th. On 24th and 27th a 10 per cent. irrigation was applied. On the latter date there were 15 to 20 pus cells to the field in the urine from the right kidney and 1 to 2 in the left kidney. On July 1 a 15 per cent. irrigation was used. On the 5th a 15 per cent, irrigation was used and two fluidrams retained. The right kidney's urine contained 2 to 3 pus cells, a few red blood corpuscles (traumatic) and no bacteria. There were no pus cells or bacteria from left kidney. On the 8th a 15 per cent. irrigation was used. On the 13th a 15 per cent. solution again used and there were no pus cells or bacteria from either kidney. From the 15th to the 28th daily bladder irrigations of 20 per cent. Silvol were made. The patient left the hospital on the 28th. I saw the patient again on August 17. A cystoscopic examination was made and the bladder and ureters were found normal. The catheterized urine from each kidney still contained a few pus cells, but was free from bacteria and otherwise normal. On October 10 the patient was again examined and both kidneys were found to be entirely free from pus and bacteria.

Conclusion: In conclusion I wish to say that I consider Silvol one of the most efficient silver-salt preparations the urologist has at his command. Given by means of ureteral catheterization, it gives excellent results in all cases of pyelitis regardless of the type of bacterial infection present. Its non-irritating and non-toxic properties are especially to be commended. In pyelography a 25 per cent solution produces a most beautiful outline of the kidney pelvis and does not cause the patient any discomfort whatsoever.

LOW ESTIMATE PLACED ON PHYSICIAN'S BUSINESS ABILITY.

Mr. A. S. Comynn Carr in his book on National Insurance (Health Insurance) quoting some of the people in England says that physicians are "amiable weaklings in business matters" and "easily gulled by piteous tales and flattering remarks about the magnanimity of the profession."

The maintenance of health is the first duty of the patriotic American?

Exercise in the open air cures and prevents many ills?

Society Proceedings

COOK COUNTY.

CHICAGO MEDICAL SOCIETY

Scientific Meeting, January 24, 1917

The President, Dr. A. Augustus O'Neill, in the Chair

APPENDICITIS IN PREGNANCY

Dr. Aimè Paul Heineck summarized as follows: 1. Appendicitis, acute or primary, chronic, relapsing or recurrent, complicates pregnancy with greater frequency than is believed. 2. It occurs in single, twin, first, early and late pregnancies; in primiparæ, dentiparæ and multiparæ; at all periods of the child-bearing age, and at all periods of gestation. 3. Gestation exerts no untoward influence upon the normal appendix. 4. Appendicitis and unilateral or bilateral tubal pregnancy are frequently mistaken for each other. 5. In appendicitis, ectopic pregnancy, or combined appendicitis and ectopic pregnancy of obscure symptomatology, it matters not whether you are certain or in doubt as to the real diagnosis, the salvation of your patient lies in early and timely operative treatment. 6. During gestation every type of appendicitis may occur. 7. Adhesion formation is a very important complication. 8. The difficulties in diagnosing appendicitis in the pregnant are the same as in the non-pregnant. 9. Pregnancy increases the fatality of appendicitis. Early surgical intervention gives a good prognosis, and the earlier the better. 10. The morbidity and mortality of appendicitis in pregnancy are the morbidity and mortality of delay in applying efficient surgical treatment. 11. In the majority of cases surgically treated, there is no interruption of pregnancy, and when it does occur, it is not due directly to the operation. 12. All cases of active, latent or chronic or previous appendicitis, calls for operation during pregnancy. 13. The operation is the same as in the non-pregnant state; also postoperative treatment.

THE KIDNEY IN OBSTETRIC ECLAMPSIA

Dr. W. A. Newman Dorland after reviewing the literature and discussing the kidney in pregnancy, the theories of the causation of the kidney of pregnancy, the starvation of the renal cells as a cause of urinary suppression, the arterial tension in eclampsia and the pre-eclampsia toxemia, the author drew the following conclusion: 1. The history of pregnancy, so-called, is not a primary condition, but is secondary to vascular changes in the mother's body. 2. The primary change in the pre-eclamptic toxemia is a steady accumulation in the maternal blood, or a sudden influx of noxious matters of as yet undetermined origin. 3. These toxins immediately produce an irritation of the arterioles of the whole body with a consequent vasomotor spasm and a rise of arterial tension. 4. The arterioles of the renal cortex share in this general vasomotor contraction and prevent the flow of blood to the renal cells. 5. The renal cells, being thus deprived of their blood supply, show all the manifestations of tissue starvation, including a suppression or total abolition of their eliminative function. 6. There is no breaking down of the renal tissue with permanent injury to the vital structure of these organs in this disease. 7. The correction of the vascomotor spasm will promptly restore the renal function by re-establishing a flow of blood to the renal cells. 8. We have, consequently, in all cases of rising arterial tension in pregnant women, an urgent indication for the early administration of vaso-paralyzants, especially glonoin and veratrum viride. 9. The secondary action of these drugs is powerfully diuretic when the ordinary diuretics fail to act.

TREATMENT OF CHRONIC OSTEOMYELITIS BY SKIN FLAP AND ADHESIVE PLASTER METHOD

Dr. Emil B. Beck read a paper with this title, in which he spoke of the treatment of that type of osteomyelitis, which had passed through its acute and subacute stages after prolonged surgical treatment.

He had adopted a plan in dealing with these cases which proves most satisfactory. He first tried a most conservative treatment, namely, the injection of bismuth paste, and to his satisfaction he found he could clean up at least sixty per cent of the most resistant cases without the use of any sharp cutting instrument, not even the aid of which is considered a most harmless instrument, the probe. Here he entered a protest against the indiscriminate use of the probe. The probe, no doubt, at times, is a valuable diagnostic measure, but occasionally it misleads and indicates operation which may become very disastrous, and hence the harm far outweighs the good which is derived from it.

The main objects in planning the operations were (1) to expose the diseased area by an adequate incision; (2) to take away every vestige of the diseased tissues under the guidance of the eye; (3) to close the wound in such a way as not to permit any dead space in the resected cavity; (4) to use no suture material whatever except ligatures for arteries and leave the wounds widely gaping; (5) to reproduce epithelium of granulating surfaces without skin grafts.

Scientific Meeting, January 31, 1917

Dr. George W. Green and Dr. J. J. Moore contributed a joint paper, in which they reported this case and gave abstracts of the literature of cases of postoperative intracranial hemorrhage. The patient was a trained nurse, 36 years of age. Her present trouble began two or three years ago, when she noticed she had a tumor. She had slight pain and during the past year she had noticed the tumor was rapidly increasing in size. She seemed to have a premonition of death. September 10, 1915, her leukocyte count was 10,900, otherwise blood findings were normal. Urine was normal, with the exception of the specific gravity, which was only 1.008, and which was thought all right on account of the patient having abstained from food for 24 hours prior to entering the hospital. She had the ordinary preparation for operation. On entering the hospital her temperature was 98.2 degrees, pulse

104, respiration 22. She went to the operating room about 8:40 a. m. and was returned and in bed at 10:40 a. m. The operation consisted of hysterectomy for a uterine fibroid weighing about 10 pounds. On her return from the operating room her pulse was 88 and respiration 20. The nurse recorded her condition good, with skin warm. At 11:30 a. m. her pulse was 80, and nurse reported she was awake and quiet. During the next 18 hours, patient had 23 convulsions and died.

POSTOPERATIVE VOLVULUS

Dr. C. A. Buswell read a paper on this subject, in which volvulus is defined as a twisting of the intestine upon its long axis until there is sufficient interference with the blood supply to cause strangulation unless relief was afforded. The exact mechanism of its production is unknown, but the two necessary factors are, first, a congenital or acquired defect in the intestinal attachment, allowing of a free mobility, and, second, a condition producing an artificial pedicle.

The conditions which predispose to volvulus are more frequently found in persons of advanced years than in the young, and volvulus is most common in the aged and those past middle life. The immediate cause may be a strain or some effort, as in lifting, or a traumatism, such as in compression of the body. Sometimes overloading of the intestinal tract, combined with some effort or strain, is of importance. Thus in old people who have suffered from habitual constipation the sigmoid flexure becomes elongated and its mesentery stretched.

POSTOPERATIVE SEQUELAE AND THEIR AVOIDANCE

Dr. George De Tarnowsky, in speaking of inguinal herniotomies, stated that after splitting the external oblique muscle and exposing the canal, a small nerve is to be seen passing one cm. above and almost parallel to the lower margin of the conjoined tendon. This is the most important trophic nerve of the conjoined tendon. Its removal or inclusion in the coapting sutures is probably responsible for many hernial recurrences. That abuse of drainage, and more particularly the repeated reintroduction of drainage tubes or of cigarette drains into the peritoneal cavity, accounts for a large percentage of postoperative fistulae is the firm conviction of the author.

Scientific Meeting, February, 7, 1917

ALCOHOLISM: ITS PSYCHOLOGY AND ITS CURE BY PSYCHOTHERAPY, WITH DEMONSTRATION OF METHOD

Dr. Albert H. Burr stated that under given conditions the alcoholic is especially susceptible to the salutary influences of this form of therapy. He recently cured a hard drinker who, many years ago, reformed and for 13 years was a total abstainer. One night, at a social function, Manhattan cocktails were served. He pushed his glass aside, but was bantered to eat the cherries, which it was urged could do no harm, but the brandied fruit aroused the old appetite with irresistible power. He left the table intoxicated and returned to his former intemperate habits. The application of psychotherapy for the cure of alcoholism, therefore, is a rational therapy, because it is based upon the known laws of suggestability. It is safe, agreeable and economic, for the patient may continue or soon resume his vocation during his course, without publicity or undue sacrifice of time and money spent in an institution.

A NEW PROCEDURE IN THE DIAGNOSIS AND DETERMINATION OF CURE OF GONORRHEA

Dr. Louis D. Smith described his test in great detail, after which he drew the following conclusions: It appears that we have a reliable test, employing the principles of complement fixation, that determines the presence of the gonococcus in any manner of discharge from any accessible location and at the very inception of the disease. It has been a harbinger of an exacerbation, even before any subjective or objective signs or symptoms indicate it. Specimens for the test are easily collected and prepared without any discomfort to the patient. It is possible to locate the focus of infection, thus serving as a guide to the proper treatment. The test has been especially valuable in the diagnosis of gonorrhea in the female. Finally, it is a reasonably certain aid in the determination of a cure.

Joint Meeting of the Chicago Medical Society and the Medical Women's Club of Chicago, Feb. 14, 1917

PAIN AND VOMITING IN BILIARY TRACT INFECTIONS

Dr. Charles L. Mix said there were two points which he wished to bring out. The pain which occurs in biliary tract infections is sometimes a steady pain, sometimes a paroxysmal pain and it is frequently a referred pain or a reflex pain in parts other than the biliary tract region. The steady pain is usually associated with tenderness and soreness underneath the right costal border and is very constant. He considered the referred pain which occurs in these cases of true biliary tract infection as the principal point to consider. The other point he wished to emphasize had to do with the general subject of vomiting and the character of the vomitus in certain cases of trouble in the upper abdomen.

The speaker said that in all cases in which there is obscurity of diagnosis in diseases of the upper abdominal quadrant the complication of referred pain in the phrenic nerve is significant of disturbance about the transverse fissure of the liver, and the vomiting of bile should always raise the thought of disturbance in the upper abdominal quadrant.

TUMORS OF THE BREAST

Dr. Frederick A. Besley discussed tumors of the breast under three heads: 1. The increasing number of tumors of the breast seen by the physician. 2. Methods of early diagnosis. 3. The exhibition of lantern slides for the purpose of showing the more common types of breast tumors. Earlier and older statistics show that from eighty to ninety per cent of all tumors of the breast seen in large clinics were malignant. This percentage of benign to malignant tumors is rapidly changing, Rodman and Bloodgood in re-

cent statistics having shown that at least 50 per cent of tumors now seen by examining physicians are benign. The author stated that it was his conviction if a diagnosis is to be made early enough to offer the patient the best possible hope for recovery, it must be made before it is possible to make it with clinical evidence unaided. The miscroscope should always be used as an adjunct.

THE PSYCHOSES OF ADOLESCENCE

Dr. Harriet C. B. Alexander said adolescence was a period of stress when a new function is introduced into the organism disturbing the physiological balance previously existing. The mental attitude of the adolescent is one of uncertainty and doubt. The etiologic moment has two of its elements always in evidence in adolescence, the congenital constitution and the constitution at a particular time.

J. V. Fowler,
Secertary.

CHICAGO ROENTGEN SOCIETY

Regular meeting held at the Graduate School of Medicine, January 12,1917.

The first number on the program was the exhibition of interesting plates with case reports, among which Dr. E. Blaine showed a Roentgenogram of a patient with a large spiral spring lodged in the esophagus. The patient was demented and attempted to swallow it afer removing same from the bed spring.

The next numbers on the program were papers by Dr. C. A. Donaldson and Dr. W. A. Gekler, the abstracts of which are appended.

James T. Case, President.
M. J. Hubeny, Secretary.

ROENTGEN DIAGNOSIS AND LOCALIZATION OF FOREIGN BODIES IN THE EYE AND ORBIT

C. A. Donaldson, M. D.,
MINNEAPOLIS, MINN.

Reporting a series of 151 examinations, of which 5 per cent were women and 13 per cent were children, a foreign body was demonstrated in 50 per cent of cases.

A horizontal section of the orbit reveals a thick triangular dense bone, the malar, which forms the external orbital border. It is in marked contrast with the loose interorbital bone structure. A plane drawn through these two borders bisects the eye in its average position.

Rays passing from an angle of 10 to 12 degrees forward throw the malar shadow of the uninjured side back of the injured eye and constitutes the angle of choice. This leaves the anterior chamber and lens free from any bone shadow except that loose interorbital structure, while the posterior two-thirds of the eye has a single dense border to obscure the shadow of a foreign body.

Failures. In one of Sweet's failures the thin particle of steel in the nasal portion of the lens was obscured by the orbital border, showing that an angle of perhaps 25 to 30 degrees was used. In my own case, the first exposures, made in the plane of the external orbits, failed to show steel in he vitreous, the two malar densities entirely obscuring the shadow.

A subsequent examination at a 10 degree angle showed steel 2x3 millimeters very clearly. Other failures have been reported by Arcelin & Randolph, but give no technic.

Plate measurements have the following accuracy: Ant.-post., is exact. Verticle less so, and horizontal has a possible error of 1 to 2 mms.

Kohler's claim, that doubling of the foreign body shadow with eye movements proves it to be intraocular, has been criticised, but is largely correct. The outer layer of Tenon's capsule has very slight movement from a point near the cornea to nearly the entrance of the orbital nerve. In this area Kohler's contention must be admitted. The anterior and the extreme posterior portions of the globe, however, do not have the extra ocular tissues fixed. Fortunately the large percentage of cases are located within the favorable area for this special examination. For the anterior check examination, the writer has inserted a small needle on the inner side of the lid with good results.

A chin fixing device was shown. It prevents movements of the chin in any direction, and is additional aid in localization.

Finally all negative cases should be examined at various angles, and exposures should be overtimed.

In localization it is well to remember that the Sweet charts are drawn for 24 mm in diameter and are for the axis only. The diameter of any plane, either anterior or posterior, for the axis is progessively less than that of the axis.

Centering of the indicator, and the measurement of its distance, before and after exposures, must correspond. If they do, it is reasonable to suppose that the eye has remained fixed during this time.

PHTHISIS PULMONALIS AND OTHER FORMS OF INTRATHORACIC TUBERCULOSIS.

W. A. Gekler, M. D.,
Medical Superintendent, Municipal Tuberculosis Sanitarium
CHICAGO.

The writer calls attention to the fact that tuberculosis disease in the chest does not always manifest itself in the same manner. It is possible to differentiate radiographically as well as clinically between these different forms of tuberculosis.

The first form discussed was the primary tuberculosis of children, with the invariable regional gland involvement. The point was made that in the primary tuberculosis, and only in the primary tuberculosis, does one find this regional gland involvement. The later forms of tuberculosis are practically always metastatic from a glandular focus. The lesion at the point of inoculation is usually quite slight in extent and shows a marked inclination to healing. The disease may remain latent in the glands, however, for a long period of time and metastasis take place

following some injury, whether that be an intercurrent disease, overwork or dissipation, etc.

Phthisis pulmonalis is a broncho-genic metastasis, a true bronchial infarct. This disease is intra-alveolar, pneumonic in type and as a rule has a bad prognosis, no matter how slight the earlier lesion may be. The first manifestation of phthisis pulmonalis may be quite severe and the patient have a great amount of involvement within a very short time after the pulmonary symptoms have manifested themselves. In other words, the disease does not always begin as "incipient" and then later become moderately advanced and far advanced. It may be far advanced from the very beginning. Extension takes place via the bronchi by aspiration of tuberculosis material into unaffected parts of the lung. Phthisis pulmonalis may in rare instances be caused by a reinfection from without.

Another form of broncho-genic metastasis is pleural tuberculosis, in which the metastatic tubercle, instead of rupturing into the bronchus, with the discharge of its contents to the outside, ruptures into the pleura with resulting pleural disease.

Miliary tuberculosis, whetheh it be a general miliary or only a partial miliary, with local manifestations in joints, bones, kidneys, etc., is a hematogenous metastasis which very often comes from a diseased bronchial gland. The result of such a miliary tuberculosis depends upon the number of organisms getting into the circulation, as well as the "resistance" of the individual. When the lungs are also involved in a general miliary tuberculosis the radiograph is the best diagnostic means we have at present.

Still another form of tuberculous disease is one which is rather uncommon and has a fairly good prognosis. This is caused by an extension of the disease per continuity from the glandular focus along the lymph channels. It is interstitial in type, running a slow course and responding usually more readily to treatment than phthisis pulmonalis. Radiographically one misses the cloudy shadows of the tuberculosis broncho-pneumonia in this type of disease.

This work was based on the radiographic study of 700 cases with all forms of tuberculosis, and clinical observations on 3,000 such cases.

MADISON COUNTY.

The Madison County Medical Society met in the Grand Jury Room of the Court House at Edwardsville on January 5, 1917, with President Dr. J. B. Hastings in the chair.

Members present: Drs. Johnson, Burroughs, Oliver, Kiser, Church, Kerchner, Harrison, Sims, Cook, Sutter, Pfeiffenberger, Hamm, Gossard, Ferguson, Hirsch, Barnsback, Schreifels, Hastings, J. W. Scott and E. W. Fiegenbaum. Visitors: Dr. John Young Brown of St. Louis; Dr. F. S. O'Hara, of Springfield. Also the following dentists: Dr. Geo. C. Schwarz, Dr. Homer Baird and Dr. Roy Fink, all of Edwardsville.

The minutes of the last meeting were read and approved. The application of Dr. Wilcox Thorne, of Granite City, was read and referred to special board of censors: Drs. Johnson, Schreifels and Burroughs, who made a favorable report. The rules were suspended and on motion the secretary was instructed to cast a favorable ballot and Dr. Thorne was declared elected to membership in this society.

The president appointed the following members to serve as auditors during the ensuing year: Drs. F. O. Johnson, O. C. Church and E. A. Cook. Bills to the amount of $58.06 were referred to auditors, found correct and ordered paid.

Dr. John Young Brown, of St. Louis, was introduced and read a very fine paper on the "Surgery of Cancer." He held the attention of all and presented the very latest ideas on this subject and at the conclusion of his address many of the members took part in the discussion.

Dr. F. S. O'Hara, of Springfield, followed with an address on "Teeth and Their Influence on Systemic Disorders." This lecture was illustrated by 60 or 70 sliding pictures showing various disorders of the teeth and indicating a probable source of infection which causes pathological changes in various parts of the body. The lecture throughout was very interesting and instructive.

After a hearty vote of thanks to both of our speakers, the society adjourned to meet in Granite City on the first Friday in February.

Personals

Dr. Karl F. Snyder has been elected president of the Freeport Club.

Dr. D. M. Keith, Rockford, and family visited in Cuba last month.

Dr. S. S. Fuller, Paxton, is reported about to remove to Riverside.

Dr. and Mrs. E. Wyllys Andrews left for Florida, February 8th.

Dr. F. O. Ringnell, Moline, and Mrs. Ringnell are visiting in San Diego.

Dr. W. C. Hovey has returned to Nokomis after several months in Denver.

Dr. C. F. Yerger, Cicero, has recovered from an illness of several months' duration.

Dr. Elmer E. Hagler, Springfield, escaped serious injury in an auto collision recently.

Dr. E. S. Smith, Urbana, was robbed and beaten by holdup men while making a call last month.

Dr. Lowell F. Ingersoll was run over by a street car, January 22, and sustained severe injuries of the foot.

Dr. John W. Nuzum, Chicago, was operated on for appendicitis at the Cook County Hospital, February 19.

Drs. E. Wyllys Andrews and Edmund Andrews have removed their offices and laboratories to 2526 Calumet Avenue, Chicago.

Dr. Harry C. Rolnick has returned after several months' duty in military hospitals on the Rhine and in Western Prussia and Bohemia.

Dr. Jas. G. Kennedy, Bridgewater, S. D., who lived in Chicago twenty years before going to South Dakota, has removed to Garnett, Kansas.

Dr. Jacob J. Minke returned to Chicago February 8th, after eight months' service in a military hospital at Pardubitz, near Prague, Bohemia.

Dr. Arthur William L. Hanson, Belleville, has left for England, where he has received an appointment in the British Hospital Medical Service.

Dr. Arthur F. Schuettler was held up and robbed of a watch, diamond pin, money and a case of surgical instruments near his home, February 17th.

Drs. A. O. Moore, Hugh Meachem and L. P. Waldman, Chicago, sustained minor injuries when the auto in which they were riding was struck by a street car and thrown against a lamppost.

News Notes

—The house of Dr. James H. Oughton, Dwight, was destroyed by fire February 11.

—February 3, Dr. Charles W. Miller, Peoria, discovered ten cases of smallpox in one family.

—The directors of the Fenger Memorial Association have made a grant of $400 for research on heat stroke.

—The Peoria Medical Society at its meeting, February 6, unanimously voted to join the Peoria Chapter of the American Red Cross.

—The Beulah Home and Maternity Hospital has purchased property on North Clark Street, near Webster, 40 by 50 feet, for $14,000.

—Examinations for internship in Cook County Hospital will be held March 13 to 15. Graduates of medical schools in Cook County are eligible.

—Michael Reese Hospital has purchased, from the estate of William M. McClintock, property on Lake Park Avenue, 50 by 92 feet, adjoining the hospital, for $18,000.

—The Illinois Tuberculosis Association is arranging for a tuberculosis survey of LaSalle, Adams, Morgan, McLain, Champaign, Livingston, Ogle and Kane counties.

—St. John's Hospital, Springfield, will build a tuberculosis sanatorium to cost $500,000. It will be six miles east of Springfield on a site of 153 acres. Work will be begun in March.

—The board of directors of the Children's Memorial Hospital voted to accept, February 12, the offer of Mrs. Arthur Ryerson of the use of her home during the summer months for convalescent children.

—At a meeting of the Institute of Medicine of Chicago, February 22, Dr. Horatio B. Williams of Columbia University, New York, delivered an illustrated address on "Electrocardiography and its Applications to Medicine."

—A number of physicians, headed by Drs. J. Rawson Pennington and Charles H. Parkes, are organizing a base hospital unit with headquarters at the Sheridan Park Hospital. Dr. Clarence L. Wheaton has been selected as adjutant.

—A conference of physicians under the auspices of the state board of health was held at St. John's Hospital, Springfield, February 20 to 23, to study the treatment of children suffering from infantile paralysis. A clinic was also held.

—The Board of U. S. Pension Examining Surgeons for Pike County has been reorganized with the following officers: Dr. W. E. Shastid, Pittsfield, president; Dr. F. N. Wells, Pittsfield, secretary; Dr. R. P. Wells, Pleasant Hill, treasurer.

—Sangamon County Medical Society has established a medical library in the lecture room of St. John's Hospital, Springfield. A number of medical books and magazines have been donated, and it is hoped to open the library in March.

—Have you had your telephone "fumigated?" A story is going the rounds that people have been advised to cover their receivers with a heavy cloth

as the Telephone Company was about to fumigate the phones by blowing some very offensive gas through them.

—Dr. Roscoe Giles, the Negro physician who was certified as junior physician at the municipal tuberculosis sanitarium, Chicago, was dismissed on the first day of service as the opposition by patients was so great as to affect their physical condition unfavorably.

—A new Red Cross unit was formed at St. Luke's Hospital, February 10, with Mrs. Heaton Owsley as chairman. The organization will be divided into two classes under the direction of Dr. Lewis L. McArthur, and will meet at St. Luke's and Michael Reese hospitals.

—The eugenics bill, requiring physical examination before the issuance of marriage licenses, was reported favorably by the house judiciary committee February 20. Tuberculosis and other communicable diseases were added to the provisions of the original draft of the bill.

—A new journal, *The Radium Quarterly*, has made its first appearance. The journal will be devoted to Radium Therapy, and is published by the Radium Institute, Chicago. Volume I is of very neat appearance, printed on an excellent grade of glazed paper, thus making the illustrations appear as they should.

The journal should fill a very important role in medicine, and we hope it has come to stay.

—The Illinois Division of the Medical Reserve Corps has issued an appeal to recent graduates of medical schools who have had a hospital internship to consider entering the medical service of the army or navy. There are at present, or soon will be, 500 vacancies in the medical corps of the army and navy.

—The health officials, philanthropic workers, physicians and nurses of Chicago and its suburbs have organized an association for the prevention of infantile paralysis. Health Commissioner Robertson is president of the association; Mrs. Harlan Ward Cooley, vice chairman, and Dr. Willis O. Nance, secretary.

—The attention of secretaries is called to the small number of reports of county societies we report this month. If anything of general interest happens at your meetings it is up to you to send it to the JOURNAL for publication.

—A plan is on foot for a large addition to the facilities of the University of Illinois for medical instruction and treatment. President James and Dr. E. H. Ochsner suggest the purchase of the old Cubs' ball park for a new university medical college, psychopathic hospital, state central hospital, eye and ear infirmary and hospital for crippled children.

—Sixty-five students of the University of Chicago who have enrolled for service with the American Ambulance in Paris have transferred their service to the American Ambulance Corps which is being organized. The corps will be connected with one of the four base hospitals in Chicago, and will be under the charge of Dr. H. Wernicke Gentles.

—Indictments against six men in Du Page county indicate that fifty physicians were swindled out of $10,000 by an insurance company that sold stock on the promise of appointing the physicians medical examiners. But if all the insurance men who have bunkoed physicians into insuring on similar promises were in jail, there would be little room left for the rest of the grafters.

—An organization of the health and related organizations of Chicago and suburbs was perfected at a meeting February 15, to plan a campaign against infantile paralysis and forestall epidemic conditions next summer. Dr. C. P. Caldwell suggested pasteurization of certified milk as a safety measure, but after hearing an eloquent defense of certified milk the meeting refused to endorse the requirement of pasteurization except for market and inspected milk.

Marriages

HENRY J. ROTH, M. D., to Miss Annabell McAuley, both of Chicago, January 27.

JULIUS E. LACKNER, M. D., Chicago, to Miss Florence Simon of Minneapolis, January 25.

BROWN S. MCCLINTIC, M. D., to Miss Eleanor Soukup, both of Chicago, at Kermanshah, while in the Russian hospital service.

HANNIBAL CLAUDE FORTUNE, M. D., Rochester, Ill., to Mrs. Claude Beatrix Fortune of Pleasant Hill, Ill., at St. Louis, February 5.

Obituary

DR. HELEN REYNOLDS KELLOGG.

Dr. Kellogg was a member of a wealthy English family, and during her earlier practice was independent financially. Always helpful and sympathetic, she was wont to give her services without thought of exacting any return. After being graduated at the Northwestern University Woman's Medical School in 1886, she was a member of the faculty of the school for several years, teaching gynecology and obstetrics. For two years she attended the large clinics and postgraduate schools of Europe and England. Returning to Chicago she was in active practice and began an association with the Klio Club, to which she lectured and gave medical advice freely for many years. It is said that her talks to the young club members were most inspiring.

The past eight or ten years her health was impaired. After exhausting her resources in the search for health, her associates in the Klio Club, the Eastern Star and the Medical Woman's Club maintained her for some time in a home, and later in the Wesley Hospital. The past six months were spent in the Cook County Hospital, where the end came February 21, from diabetes. Her death was a shock to the many friends of her prosperous days who lost track of her during her long sickness.

TRIBUTE DELIVERED AT THE FUNERAL OF DR. GLIDDEN BY DR. E. B. COOLEY.

Dr. Stephen C. Glidden was born in Kingston, Tenn., February 6, 1870, and died on February 19, 1917, in this city at the age of 47 years.

While a young boy the family removed to St. Paul, Minn., where he attended the public schools until old enough to enter Shattuck Military School at Faribault, Minn. Later he entered Exeter College, New Hampshire.

After this excellent preliminary education he entered the medical department of Michigan University, from which he graduated with honors in 1894.

June 6, 1895, he was united in marriage to Dr. Anna Ives, a classmate of the year before, who, with their little daughter, Charlotte, survives him.

Soon after his marriage Dr. Glidden located in Danville, where his rise to professional eminence was almost spectacular. An untiring and optimistic worker, a skillful and painstaking surgeon, strong, fearless and kind, he could not fail to inspire that confidence which is absolutely necessary to a surgeon's success.

He was a member and at one time president of the Vermilion County Medical Society. He was a member of the Illinois State Medical Society and chairman of the surgical section in 1915. He was a member of the American Medical Association, the Aesculapian Society of the Wabash Valley and of the Eastern Illinois Clinical Association.

It is given to few men to attain such success

Stephen C. Glidden, M. D.

in every line as did Dr. Glidden. Those sterling qualities for which he was so well known, made his remarkable professional career possible. The position he held in professional circles and the esteem in which he was held by the members of his own profession is an open book. His mental deductions were rapid and accurate and his judgment akin to foresight.

It is neither as the forceful man of affairs nor the skillful surgeon that I wish to speak of Dr. Glidden. These matters are history. The accomplishments of one so prominent could not escape you. I wish to speak of Dr. Glidden, the man. Always cordial, interested and true, rich in experience beyond his years, and endowed by nature with a keen mind, he was able to get a perspective of life that few men enjoy, and the courage with which he viewed the approaching end spoke volumes for his life.

By nature, profession and training a humanitarian, he was ever ready and willing to respond to the call of distress, a sentinel.

Duty called him where the lights were low, where the shades were drawn and eager questioners with anxious faces met him at the doorway. And what a comforter he was! Resourceful, capable, kind, able, optimistic and wise, there was a quality in his words, thoughts and deeds that has taken his name to the throne of grace in many a mother's prayer.

This courteous, gallant, courageous gentleman was more than a soldier. He was a hero; and when he answered to the final call of taps, when he was mustered out, I am sure it was written in the record, for faithful and important services and bravery in battle.

We have gathered this afternoon to pay the last tribute of respect, bringing not tears, but roses and sweet memories to a type of red-blooded manhood that is rare indeed.

Then let us carry him out in the sunlight where he lived. There we shall lay him away under a bank of flowers, flowers which in the full bloom of life suggest our tender memories of his manly qualities. The memory of his faults will die with the flowers, our sorrows will have gone with the vanishing past, and the only emotion that will come to us is a buoyant pride in the achievements and virtues of this noble man, who has gone to his just reward.

Deaths

JOHN J. RYAN, M. D., East St. Louis, Ill.; American Medical College, St. Louis, 1878; aged 72; died in St. Mary's Hospital, East St. Louis, January 20.

DAVID SEELY ADAMS, M. D., Macomb, Ill.; Keokuk (Iowa) Medical College, 1900; aged 60; a Fellow of the American Medical Association; died at his home, January 24, from pneumonia.

ROBERT STEVENSON DENNEY, M. D., Aurora, Ill.; Rush Medical College, 1909; aged 33; a Fellow of the American Medical Association; died at his home, February 12.

ALLEN A. BARNETT, M. D., Jerseyville, Ill.; University of Louisville, Ky., 1853; aged 86; formerly a member of the Illinois State Medical Society; died at his home, January 12.

JOHN MILTON ELLIOTT, M. D., Peoria, Ill.; Kansas City, Mo., Medical College, 1890; aged 86; a veteran of the Civil War; died in the Deaconess Hospital, Peoria, February 1, from senile debility.

JACOB S. NEWCOMER, M. D., Chicago; College of Physicians and Surgeons, Chicago, 1893; aged 54; for many years a practitioner of South Dakota and an officer of the United States Indian Service; senior consulting physician of the Contagious Diseases Hospital of Chicago; died at his home, January 27, from nephritis.

HENRY J. BURWASH, M. D., Chicago; McGill University, Montreal, 1879; L. R. C. P., London, 1879; aged 62; a Fellow of the American Medical Association; surgeon to the Norwegian Lutheran Deaconess Hospital; corporation surgeon for the General Accident Assurance Company; for a long time surgeon for the Northwest Mounted Police of Canada; died at his home, February 7, from pneumonia.

WILLIAM RUSSELL ALLISON, M. D., Peoria, Ill.; Rush Medical College, 1886; aged 53; a Fellow of the American Medical Association; for several years secretary and once president of the Peoria City Medical Society; for ten years health commissioner of Peoria and once alderman; for five years secretary of the Proctor Hospital Medical Staff, and at the time of his death president; died in his office, January 12, from angina pectoris.

FRANCIS A. SMITH, M. D., Rock Island, Ill.; Pulte Medical College, Cincinnati, 1891; aged 64; formerly of Zanesville, Ohio; local surgeon for the Baltimore & Ohio Railroad, and a member of the Zanesville Board of Education; for six years head physician for Ohio of the Modern Woodmen of America, and since 1903 chairman of the board of supreme medical directors of that organization; died at his home, January 21, from cerebral hemorrhage.

NEW AND NON-OFFICIAL REMEDIES

During February the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with new and non-official remedies:

Merck & Co., Optochin, Optochin Hydrochloride.

E. R. Squibb & Sons, Tablets Sodium Chloride and Citrate-Squibb (Dr. Martin H. Fischer).

Tabellae Dulces Aristochin (Western), 1 gr.—Each tablet contains aristochin 1 grain with cocoa, sugar and saccharine as vehicles.

Tabellae Dulces Heroin (Western), 1/100 gr.—Each tablet contains heroin 1/100 gr. with cocoa, sugar and saccharine as vehicles.

Tabellae Dulces Novaspirin (Western), ¼ gr.—Each tablet contains novaspirin ¼ grain with sugar, starch, liquid petrolatum, saccharine, curcuma and oil of lemon as vehicles.

Tabellae Dulces Tannalbin (Western), 1 gr.—Each tablet contains tannalbin 1 grain with cocoa, sugar and saccharine as vehicles.

Tabellae Dulces Terpin Hydrate with Heroin (Western), 1/100 gr.—Each tablet contains terpin hydrate ½ grain, and heroin 1/100 grain, with cocoa, sugar and saccharine as vehicles. Western Chemical Company, Hutchinson, Minn. Accepted for the Appendix to New and No-official Remedies (Jour. A. M. A., Feb. 10, 1917, p. 461).

Book Notices

A Manual of Nervous Diseases, by Irving J. Spear, M. D. Professor of Neurology at the University of Maryland, Baltimore. 12mo. of 660 pages with 169 illustrations. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, $2.75 net.

This hand book of neurology is designed to fill the needs of the general practitioner, who has neither time nor inclination to go deeply into the subject of neurology, and the medical student who needs the elementary knowledge in as brief and clear a form as possible. We think it fills these needs very well indeed.

It will especially be an aid to the general practitioner in the diagnosis of those puzzling organic nervous diseases. The diagrams and other illustrations will aid greatly in making an examination for the various nerve lesions. Differential diagnosis has received special attention. The anatomy of the nervous system perhaps receives the greatest attention, and because of this many of the results of nerve lesions are more clearly presented.

We recommend the book to the general practitioner and the student.

A Text-Book of General Bacteriology. By Edwin O. Jordan, Ph. D. Professor of Bacteriology, in the University of Chicago and in Rush Medical College. Fifth edition thoroughly revised. Octavo of 669 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $3.25 net.

The author states that this text-book is an outgrowth of lectures given to the students in the University of Chicago. It is essentially a student's text-book, but the general practitioner will have use for it, and will find it concise and well adapted to his wants. The sanitarium will find a great deal in the book which he must have put in a clear practical way.

The fundamental principles of the science of bacteriology take up the forepart of the book. A chapter is given to immunity, while a chapter each is given to the filterable viruses, to milk and milk products, to the nitrogen cycle, to bacteria of the arts and industries, to the bacteria of the soil and water, to the bacterial diseases of plants and to the infectious disease of doubtful or unknown origin. Many chapters are devoted to the well-known bacteria and infectious diseases.

This fifth edition brings bacteriology down to date. We can recommend it to those hunting for a text-book on this subject.

A Treatise on Diseases of the Skin. For the use of advanced Students and Practitioners. By Henry Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Eighth edition, thoroughly revised. Octavo of 1,309 pages, with 356 text illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.50 net. Half morocco, $8.00 net.

Any text-book running its eighth edition needs no commendation by a reviewer. The profession has already endorsed it.

Those of us who have been using one of the earlier editions of the work will see a rather large revision, as much new material has been added. The book is so large and complete that the student is apt to think the subject beyond his mastery. For the general practitioner it will prove to be one of the most used of reference works. The painstaking detail of treatment which the author gives will always be popular with the general practitioner, who has often failed in treatment because of an inefficient method rather than inefficient remedies. The dermatologist will welcome this new edition, but the practitioner needs it.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. Easterly Ashton, M. D., LL. D, Professor of Gynecology in Graduate School of Medicine of the University of Pennsylvania. Sixth edition, thoroughly revised. Octavo of 1,097 pages with 1,052 original line drawings. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.50 net. Half morocco, $8.00 net.

This sixth edition of Ashton's Practice of Gynecology is just from the press of W. B. Saunders Company. We know of no text-book on gynecology which we think will serve the purpose of this book to the operating gynecologist. While we think it is of most value to the operator, the medical side of gynecology is not neglected.

The book is uniform in style and binding with previous editions, but has been revised, brought down to date and some new material inserted. Its chapters on examination will be found especially useful in diagnosis. The text of the book is brief, but always to the point and clearly expressed.

The illustrations which are profuse are mostly diagramatic, but frequently serve the purpose better than drawings. A large feature is the numbered illustration of the instruments needed in a particular operation, thus helping to overcome the too frequent forgetting of certain, badly needed instruments. The gynecologist can ill afford to be without this book.

A Manual of Physical Diagnosis. By Austin Flint, M. D., LL. D., Late Professor of the Principles and Practice of Medicine and of Clinical Medicine in Bellevue Hospital Medical College, etc. Seventh Edition, Revised. By Henry C. Thatcher, M. S., M. D., Associate in Medicine in the College of Physicians and Surgeons of Columbia University; Assistant Attending Physician, Roosevelt and Lincoln Hospitals, New York. Illustrated. Price, $2.50. Lea & Febiger, Philadelphia and New York.

One of the greatest mistakes of our college curricula of today is the absence of sufficient time given to the teaching of physical diagnosis. In recent years

laboratory methods have had the tendency to drive the student away from physical diagnosis, and as a consequence, when the student emerges as a physician and gets beyond the shadow of the laboratory, his efforts are frequently amusing, painful or pitiable. Palpation, percussion or auscultation of any portion of the body is an art, an act not to be done lightly.

A new revision of an old work, so well known as this, will be appreciated. The practitioner will find it valuable to review, and the student or recent graduate will find it a necessity.

The book remains in style the same as its predecessors. A chapter on physics has been introduced, the entire book revised and newer methods added, while the chapter on Arrhythmia has been rewritten.

CLINICAL GYNECOLOGY. By James C. Wood, A. M., M. D., F. A. C. S., Formerly Professor of Obstetrics and the Diseases of Women and Children in the University of Michigan, Homeopathic Department; and of Gynecology in the Cleveland-Pulte Medical College; Founder Member of the International Periodical Congress of Gynecology and Obstetrics; Gynecologist to the Huron Road Hospital; ex-President of the American Institute of Homeopathy, etc. Cloth, $2.00 net. Philadelphia, Boericke & Tafel, 1917.

The author in the foreword states that the book is a series of clinical lectures delivered to a senior medical class, the lectures being later revised, added to and generally edited.

The author has a strong tendency toward Homeopathy, and he makes an earnest appeal for a better medical gynecology. While he is a surgeon first, he condemns a too radical surgery in gynecologic practice. Although these lectures were delivered as clinical gynecological lectures, the author does not confine himself to strictly speaking gynecologic subjects. This takes us back again to his foreword, where he emphasizes the opinion that a surgeon should first be a general practitioner, and thus be able to analyze the entire body and its ailments, and note more carefully the co-relationship between the afflicted or pathologic organ and the rest of the body, than can a man who has devoted his time to one specialty.

There is much in this book which appeals to us.

ANIMAL MICROLOGY. Practical exercises in Zoological Micro-Technique. By Michael F. Guyer, Ph. D., Professor of Zoology in the University of Wisconsin, President (1916), The American Microscopical Society. With a Chapter on Drawing by Elizabeth A. Smith, Ph. D., Instructor in Zoology in the University of Wisconsin. Revised Edition. Price, $2.00. The University of Chicago Press, Chicago.

This is an excellent text-book for the elementary teaching or study of Microscopy, and all laboratory workers should have a copy. We know of no volume which covers the ground in so satisfactory a manner. Its instructions are so concise—so clear that it makes the study of laboratory methods simple.

CARE OF PATIENTS undergoing Gynecologic and Abdominal Procedures, before, during and after operation by E. E. MONTGOMERY, M. D., Professor of Gynecology in Jefferson Medical College, Philadelphia. 12mo. of 149 pages with 61 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $1.25 net.

This little volume is intended for those who are preparing for gynecologic operations. It will be found especially useful for the surgeon and nurse in planning for the operation and in choosing instruments. It gives many little details in preparation and care of the patient, both prior to and after the operation, and calls attention to many small matters which though important are frequently forgotten.

THE MEDICAL CLINICS OF CHICAGO. Volume II, Number IV (January, 1917). Octavo of 231 pages, 20 Illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published bi-monthly. Price per year: Paper, $8.00; cloth, $12.00.

This number of clinics contains a number of exceedingly interesting and instructive subjects. Among the numbers, Dr. Williamson on Splanchonoptosis, Dr. Tice on Pulmonary Abscess Following Delayed Resolution in a Croupous Pneumonia, Dr. Wright on Acidosis, Dr. Strouse on Early Diagnosis of Pulmonary Tuberculosis, Dr. Mix on Ulcers of Stomach and Duodenum, are very good. However, the balance of the clinics do not lose in value by comparison.

CLINICAL AND LABORATORY TECHNIC, by H. L. McNeil, A. B., M. D., Adj. Prof. of Medicine and Instructor in Physical Diagnosis, University of Texas Medical School, Galveston, Texas. Illustrated. C. V. Mosby Company, St. Louis, 1916. Price, $1.00

An outline work, which mastered, will aid greatly in systematic work.

PRACTICAL URINALYSIS, by B. G. R. Williams, M. D., Director Wabash Valley Research Laboratory; Author of Laboratory Methods, etc. Illustrated. C. V. Mosby Company, St. Louis, 1916. Price, $1.25.

A short guide for the every day analysis of urine. It is not, and does not claim to be complete, which, however, does not destroy its usefulness to the student or practitioner, who does not go further into the chemistry of the urine.

THERAPEUTIC EXERCISE AND MASSAGE. Designed for the use of Physicians, Students and Masseurs. By C. Hermann Bucholz, M. D., Orthopedic Surgeon to Out patients; Director of the Medico-Mechanical and Hydrotherapeutic departments of the Mass. Gen. Hospital, Boston, Mass.; Assistant in Physical Therapeutics, Harvard Graduate School of Medicine. Illustrated with 89 engravings. Lee & Febiger, Philadelphia & New York, 1917. Price, $3.25.

A very useful and timely volume on the use of exercise and massage in the treatment of disease. The subject, which is sadly neglected by most physicians, is presented in a pleasing style, and should be highly instructive. For the physician who desires to master this subject, this book can be used with profit.